



U.S. Department
of Transportation

**National Highway
Traffic Safety
Administration**

400 Seventh Street, S.W.
Washington, D.C. 20590

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If you requested NHTSA to query its database files in order to identify a specific crash, then that query was made using non-personal descriptors you provided for use in our search. This motor vehicle crash may have been identified from a data search and matches the general, non-personal descriptors you provided, but we cannot confirm that this is the specific crash report you requested.

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DYNAMIC SCIENCE, INC.
In-Depth Accident Investigation

Contract DTNH22-87-C-47169
Case DSI-93-AB-003

 1993

TECHNICAL SUMMARY

CONTRACTOR: Dynamic Science, Inc.
CONTRACT NUMBER: DTNH22-87-C-47169
CASE NUMBER: DSI-93-AB-003

[REDACTED]

This single vehicle accident occurred at a channelized "T" intersection of two, two-lane, undivided urban roadways in [REDACTED] West Virginia in the early morning hours of a summer weekday (1 [REDACTED] 92). The weather was cloudy, the roadway surface was dry and free of defects.

Vehicle 1, a 1991 Chevrolet Camaro Z28, was being driven northwest on the roadway that forms the stem of the "T" intersection at a speed estimated to be between 72 and 80 KPH (45 and 50 MPH).

As Vehicle 1 approached the intersection the driver apparently lost consciousness due to an existing medical problem, and Vehicle 1 drifted left across the center line. Vehicle 1 continued in a straight line across the intersecting roadway and impacted an earthen embankment that is located on the North edge of the crossing roadway. The Delta V for this impact was computed, using CRASH III PC, as 18.5 KPH (11.5 MPH) using a CDC of 12FDLW1 and a PDOF of 000 degrees. The combined direct and induced damage width was 157 cm (62 in) and the maximum crush depth was 14 cm (5.5 in) at C₆. The forces in this impact exceeded the manufacturer's deployment threshold in the supplemental restraint system and the airbag deployed.

Vehicle 1, after impact, drove up the positive 18 degree slope of the embankment and became airborne for a distance of 12.8 m (42 ft). Vehicle 1 landed on the left and right front wheels and the front undercarriage. Vehicle 1 then travelled 26 m (85 ft) to a positive incline where it came to a stop.

Vehicle 1 then began a rearward, right turning, arc-shaped roll. Vehicle 1 rolled backwards, following the negative slope of the terrain, 39.6 m (130 ft) and came to final rest facing southwest with the right back bumper against a concrete wall and the left back bumper against a brick waterpump house.

At FRP, the vehicle appears to have been in neutral and the apparently unconscious driver's right foot was on the accelerator and the engine was running. A fire ignited in the engine compartment and spread to the interior of the vehicle approximately 10 minutes after it came to rest.

Upon regaining consciousness, the driver is reported to have escaped the burning vehicle through a hole the driver reportedly made by breaking the windshield with a wrench adaptor for "theft-proof" wheel lug nuts.

The driver was then transported to a local hospital by his son who found him walking along the roadway. The driver was then transported to a regional burn center where he died 13 days post accident. The driver sustained second and third degree burns in the fire, and fractures, lacerations and contusions in the accident; maximum AIS = AIS-4. Vehicle 1 was towed from the scene due to damage sustained in the accident and subsequent fire.

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The crash investigation process is an inexact science which requires that physical evidence such as skid marks, vehicular damage measurements, and occupant contact points be coupled with the investigator's expert knowledge and experience of vehicle dynamics and occupant kinematics in order to determine the pre-crash, crash, and post-crash movements of involved vehicles and occupants.

Because each crash is a unique sequence of events, generalized conclusions cannot be made concerning the crash-worthiness performance of the involved vehicle(s) or their safety systems.

DYNAMIC SCIENCE, INC.
ACCIDENT INVESTIGATION
CASE NUMBER: DSI-93-AB-003

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- A. NASS Field Forms
- B. Police Accident Report

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ACCIDENT DATA:

Location: [REDACTED], West Virginia
Area/Type: Urban/Mixed
Date/Time: Summer/Early Morning
Accident Type: Car/Run Off Roadway

Injury Severity:

Vehicle 1: Driver, AIS-4 (Fatal)

AMBIENCE:

Viewing Conditions: Dark, Restricted,
Incandescent Street Lights
Cloud Cover: Cloudy
Precipitation: None
Temperature: 13 to 18⁰ C, 55 to 65⁰ F
Road Surface: Dry

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ROADWAY:

	VEHICLE 1
Type:	2 lane, undivided
Width:	7.3 m (24 ft)
Traffic Density:	Light
Median:	None
Edge:	Asphalt Shoulder
Surface:	Asphalt
Reported Defects:	None
Co-efficient of Friction (est.):	.83
Vertical Alignment:	Negative 2 percent
Horizontal Alignment:	Right turning curve 62 m (202 ft) radius

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Traffic Controls:

VEHICLE 1

Signals:	None
Signs:	Stop sign
Speed Limit:	72 KPH (45 MPH)
Markings:	Single, solid, white painted line separating northbound travel lane from East shoulder. Double, solid, yellow painted lines separating northbound and southbound travel lanes. Single, solid, white painted line separating southbound travel lane from West shoulder.

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VEHICLES:

VEHICLE 1

Description:	1991 Chevrolet Camaro Z28
Odometer:	Destroyed by fire - family reported 12,070 km (7,500 mi)
Engine:	V8 / 5.0L
Vehicle Modifications:	None
Tire Condition:	Excellent, no abnormal tread wear
Manual Restraints:	3-point manual lap/shoulder restraints L/F, R/F, L/R and R/R seating positions
Automatic Restraints:	Driver's side airbag
Reported Defects:	None
Cargo:	None
Windshield Damage:	Destroyed by fire
Fleet:	None
Tow Status:	Towed due to accident and fire damage

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VEHICLE DAMAGE:

		VEHICLE 1			
Object Struck:	Embankment	Ground	Ground	Ground	Wall
Event Number:	01	02	03	04	05
CDC:	12FDLW1	12FRWN3	12FLWN3	00UFDW1	06BRLW1
Maximum Crush:	14 cm (5.5 in) @ C ₆	Not measured	Not measured	Not measured	Not measured

VEHICLE VELOCITY ESTIMATES:

		VEHICLE 1			
Impact Speed: (estimated)	72-80 KPH (45-50 MPH)	56-64 KPH (35-40 MPH)	56-64 KPH (35-40 MPH)	56-64 KPH (35-40 MPH)	5-11 KPH (3-7 MPH)
Total Delta V:	19 KPH (12 MPH)	Not computed - out of scope			Not computed
Longitudinal Delta V:	-19 KPH (-12 MPH)				Damage masked by fire
Lateral Delta V:	0				
Energy Dissipation:	19680.7 j (14,513.8 ft.lb)				

Calculations based upon:

Delta V, for Event 1, computed using CRASH III PC.

Vault Speed computed using IPTM Vault Equation:

$$S = \sqrt{\frac{2.73-D}{D \cdot \cos \theta \cdot \sin \theta - (H \cdot [\cos \theta]^2)}}$$

COLLISION SEQUENCE:

Pre-Crash: This single vehicle accident occurred during the early morning hours of a summer weekday at a channelized "T" intersection of two, two-lane, undivided urban roadways in [REDACTED], West Virginia. It was dark, the weather was cloudy, the intersection was illuminated with incandescent street lights and the roadway surface was dry and free of defects. There was no other verified traffic on the roadway, and the posted speed limit is 72 KPH (45 MPH).

Vehicle 1, a 1991 Chevrolet Camaro Z28, was being driven northwest on the two-lane, undivided, asphalt paved stem of the "T" intersection. The northwest and southeast travel lanes are separated by solid, double, yellow painted lines. As this roadway approaches its terminus with the two-lane, undivided through roadway, there is a right turning curve with an approximate radius of 62 m (202 ft) for northbound traffic. This right turning curve ends at the South edge of the northeast/southwest through roadway. The intersection is controlled by stop signs for each of the three directions of travel.

The driver of Vehicle 1 (our case) was a divorced 59 year old male who had a history of heart and respiratory disease. The driver had been hospitalized for the 12 days immediately preceding the accident for Ischemic heart disease and had been released from the local hospital some 18 hours prior to this accident.

In the hour immediately preceding this accident, the driver of Vehicle 1 (our case) and a companion were reported to have been involved in a heated, non-violent domestic dispute, and the driver left the companion's residence, in a relatively high state of agitation, in the 1991 Chevrolet Camaro Z28 (the case vehicle).

After the driver had driven from the companion's residence, the companion telephoned the driver's son and reported the driver's agitated state. The son began an immediate search for his father.

After notifying the son, the companion also called the local police, twice within a 20 minute period of time, to request their assistance in locating the driver (our case) and his 1991 Chevrolet Camaro Z28. On both occasions the companion

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related to police a concern for the health and welfare of the case subject.

Shortly after departing the companion's residence, the case subject was driving Vehicle 1 northwest on the stem of the "T" intersection - this intersection is on a direct route from the companion's home to the local [REDACTED] Hospital - at a speed estimated to be between 72 and 80 KPH (45 and 50 MPH), approaching the right turning curve and stop sign.

The unrestrained driver (our case) apparently lost consciousness from a possible mild right hemisphere stroke or as a result of his heart condition and Vehicle 1 crossed the solid, double, yellow painted center line, drove across a painted, non-raised asphalt paved, traffic channelizer, and continued in a straight line across the northeast and southwest through-road travel lanes. There was evidence that Vehicle 1 was accelerating as it crossed the painted traffic channelizer. At the time of inspection a distinct acceleration scuff mark led across the channelizer space in a direct line to the embankment impact.

Crash: Vehicle 1 departed the northwest edge of the northeast and southwest roadway and impacted an earthen embankment 1.5 m (5 ft) northwest of the road edge in a head-on configuration. The embankment is 3 m (10 ft) in height and has a positive slope of 18 degrees. The Delta V for this impact was computed, using CRASH III PC, as 18.5 KPH (11.5 MPH) using a CDC of 12FDLW1 and a PDOF of 000 degrees. The combined direct and induced damage width was 157 cm (62 in) and the maximum crush depth was 14 cm (5.5 in) at C₆. The forces in this impact exceeded the manufacturer's deployment threshold in the supplemental restraint system and the airbag deployed.

Post Crash: At impact, Vehicle 1 travelled up the positive 18 degree embankment and became airborne for a distance of 12.8 m (42 ft). Vehicle 1 landed, 1.2 m (4 ft) higher than the point of take-off, on the front wheels and front undercarriage with the right front leading. Upon landing, the front wheels were displaced rearward shortening the right wheelbase 18.8 cm (7.4 in) and the left wheelbase 7.6 cm (3 in). Vehicle 1 rolled forward 26 m (85 ft) in a right turning arc and came to a stop on a negative 9.5 percent upgrade.

Vehicle 1 then began a rearward roll in a shallow, right turning, arc for 39.6 m (130 ft) down the 9.5 percent downgrade to the point of final rest. At final rest, Vehicle 1 was facing southwest with the right rear bumper against a small concrete wall and the left rear bumper against the brick exterior of a waterpump house. In addition, because of the slope, the right side of Vehicle 1 was approximately 46 cm (18 in) higher than the left side, and the front of the vehicle was approximately 25 to 30 cm (10 to 12 in) higher than the back.

As Vehicle 1 came to FRP, it appears that the driver was unconscious and his right foot was pressing on the accelerator causing the engine to race. The transmission appears to have been in neutral, possibly caused as the unconscious driver struck the console mounted transmission shift lever as the vehicle impacted the ground after being airborne. The transmission shift lever is not locked in the neutral to drive positions, or from the drive positions to neutral. The only locked positions are "park" and "reverse" and a lock button must be depressed to move into these positions.

A witness who lives 76 to 91 m (250 to 300 ft) southwest of the "T" intersection reported that he was awakened by the noise "...of a car hitting the ground.". The witness reported that he looked out a window and saw nothing at first, then he reports seeing headlights and heard what he thought to be car tires spinning. The witness further stated that he heard loud engine noises and what sounded like wheel rims spinning for 15 to 20 minutes. The witness stated that when he looked out of his window 20 to 25 minutes after initially waking up he noticed a fire near the waterpump building and he called the police and fire departments. During the scene inspection, close attention was given to any possible depressions, or ruts, that would have resulted from tires - or metal rims - spinning for an extended period. No evidence of spinning wheels or tires could be found. In addition, the inspection of the vehicle's rear tires revealed no indication that they had been abused. Neither the tread nor the sidewalls showed evidence of having been "spun".

A short time after coming to rest, a fire ignited, most likely in the engine compartment of Vehicle 1 near the power steering pump. When the driver regained consciousness, the vehicle was on fire. The left front door of Vehicle 1 was

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in close proximity to the waterpump house and could not be opened by the driver. The driver told his son that he had attempted to open the right front door but was too weak to push the door open because the vehicle was resting with its right side higher than the left side. The scene investigation revealed that the right side of the vehicle would have been approximately 46 cm (18 in) higher than the left side.

The driver also related to his son the he had "broken out" the windshield with a metal wrench adaptor for "theft-proof" wheel lug nuts - the adaptor, according to the driver's son, was kept in the center console - and that he had exited the vehicle through the windshield onto the hood, then to the ground.

NOTE: The driver's attempts to extricate himself from the burning vehicle, as allegedly related to the son, is questionable based upon the following:

1. The strength of the laminated windshield and the requirement for a hole large enough for the case subject to be able to crawl through the windshield and onto the hood, and the case subject's weakened condition;
2. The size of the wrench adaptor - approximately 10.2 cm (4 in) in length - and the apparent absence of lacerations or contusions to either the right or left hands, or arms of the driver (our case);
3. The tempered glass side window would seem to be a more logical area to attempt an unconventional exit from the vehicle.

When police and fire units arrived at the scene, 3 minutes after being notified, Vehicle 1 was totally engulfed by the fire and the driver could not be located.

Driver Kinematics:

The 59 year old male driver of Vehicle 1 (our case) was seated in a folding bucket seat that appears to have been adjusted to the rearward most position. The body posture and hand positions of the driver could not be determined. However, it appears that the driver was not restrained by the available three-point lap/shoulder restraints. This observation is based upon statements of the case occupant's

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son and the injuries sustained by the driver. The son stated that his father would never wear the car's seat belts because they were too restrictive.

Based on the evidence of acceleration prior to POI 1, it appears that the driver's right foot was on the accelerator and the left foot was, most likely, on the left side floor/toe pan.

At initial impact, the driver would have most likely contacted the deploying airbag with his upper torso. However, because of fire damage, the destroyed airbag fabric could not be inspected to verify occupant contact.

As Vehicle 1 came to ground from the vault, the vehicle landed right front leading which would have resulted in the driver being projected to the right and most likely resulted in his right torso striking the steering wheel rim and the right side of his body continuing to the right and contacting the console mounted transmission shift lever. These contacts appear to have resulted in the driver's right side rib fractures and the lung laceration and contusion. Also, this contact most likely resulted in the vehicle's transmission shift lever being moved from the "drive" position to the "neutral" position. To shift from any position to and from "park" or "reverse", the lock must be engaged. All other positions - "neutral", "drive 1" and "drive 2" - are "free-moving" positions and are not locked.

Because of the total destruction, by the fire, of the vehicle's interior, occupant contact points could not be independently verified. Upon inspection, the vehicle's transmission shift lever appeared to be in the "neutral" position.

Airbag System: The case vehicle was equipped with a driver's side airbag. Upon impact with the embankment (POI #1), the forces involved exceeded the manufacturer's deployment threshold in the supplemental restraint system, and the airbag deployed.

At the time of Dynamic Science's on-site inspection that occurred [REDACTED] days post accident, and within [REDACTED] days of notification, the interior fire residue had been "sifted" and "picked" over several times by representatives of the deceased owner, [REDACTED] and [REDACTED]. Most evidence found was contained in two small cardboard boxes and included a small retainer ring and portions of a wire

type filter used in the airbag module. No identifiable residual evidence of the airbag fabric could be found.

The steering wheel was detached from the steering column, the instrument panel was detached from the vehicle, and all parts of the center console appeared to have been removed.

The forward discriminating sensor appeared to have sustained heat damage. The Diagnostic Energy Reserve Module, the resistor module, and the passenger compartment discriminating sensor could not be located and it is assumed they are in the possession of the deceased owner's representative, or the representatives of [REDACTED]
[REDACTED]

Scene Clearance: The driver of Vehicle 1 (the case subject) sustained major injuries consisting of second and third degree burns, fractures, a laceration and a contusion; maximum AIS = AIS-4. The driver exited the vehicle without assistance and was found walking towards a hospital by his son some 15 to 20 minutes post accident and prior to the arrival of emergency equipment at the scene. The son transported the driver to a local [REDACTED] where the driver was administered emergency treatment, then he was transferred to a regional burn center for treatment of burns and cardiac problems. The case occupant died 13 days post accident of second and third degree burns on 35 percent of total body surface, and Ischemic heart disease. Vehicle 1 was towed from the scene due to fire and accident damage.

Safety Standards: The on-site inspection of the case vehicle revealed no violations of Federal Motor Vehicle Safety Standards and Regulations.

Conclusions: During interviews with concerned parties during this investigation, it was alleged that the airbag in the case vehicle deployed in a "ball of fire" causing second and third degree burns to the driver (our case) which, subsequently, led to his death 13 days post-accident.

The facts of this case do not support this allegation:

1. An airbag/steering column fire, or explosion, would have resulted in burns being more evenly distributed across the face and chest of the driver. Photographs and medical reports indicate minor (possibly first degree) burns to the right side of the face. The more

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serious second and third degree burns were located on the right chest, right arm and back. There were no reported burns on the left arm, left chest or abdomen.

2. The fire did not ignite in the passenger compartment of the case vehicle. The course of the fire was from the left front of the engine compartment to the right rear of the engine compartment. It appears that the fire, most likely, entered the passenger compartment through the heater/air conditioning portal in the vehicle's dash (fire wall). The hottest portion of the fire appears to have been located at the center of the instrument panel, just right of the vehicle's console.

3. The fire damage in the engine compartment is too extensive for the fire to have begun in the passenger compartment or the rear of the vehicle.

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DRIVER AND OTHER OCCUPANTS:

VEHICLE 1

DRIVER

Age/Sex:	59 year old/Male
Seated Position:	Left front
Seat Type:	Bucket, w/folding back
Height:	180 cm (71 in)
Weight:	78 kg (171 lbs)
Occupation:	Retired
Pre-existing Medical Condition:	Ischemic heart disease
Driving Experience:	> 40 years
Body Posture:	Unknown
Hand Position:	Unknown
Foot Position:	Left foot on floor/toe pan, right foot on accelerator
Restraint Usage:	Airbag only
Additional Occupants:	None

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INJURIES:

Vehicle 1

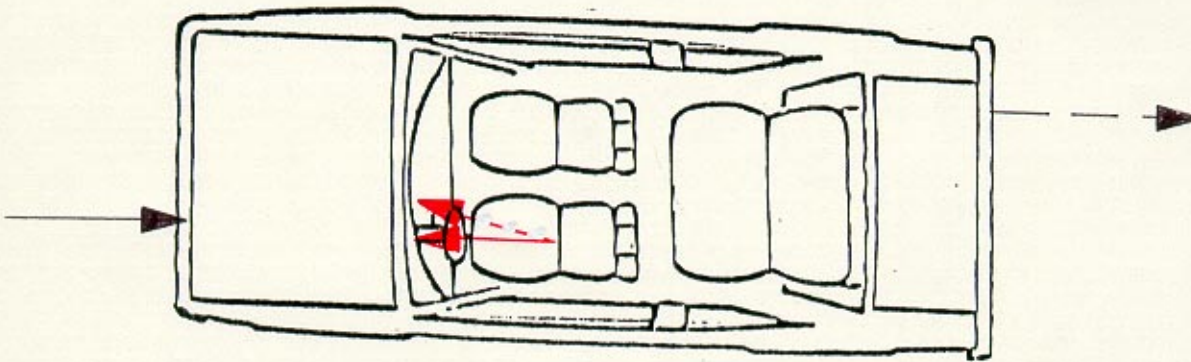
	INJURY	OIC	ICD-9	SOURCE
DRIVER	Burns, 2nd and 3rd degree, 35% TBS	2992024.4,0	948.32	Fire
	Contusion, right lung	2441402.3,1	861.21	S/W Rim-hub-spoke
	Laceration, right lung	2441414.3,1	861.22	S/W Rim-hub-spoke
	Fracture, 2 ribs, right side	2450220.2,1	807.02	S/W Rim-hub-spoke

Abbreviations Used In Scene And Photographic Documentation

ft.	Feet
in.	Inches
AIS	Abbreviated Injury Scale
BLF	Begin Left Front
BLR	Begin Left Rear
BRF	Begin Right Front
BRR	Begin Right Rear
CBE	Cab Behind Engine
CCW	Counterclockwise
CDC	Collision Deformation Classification
CG	Center of Gravity
CM	Centimeter
COE	Cab Over Engine
CW	Clockwise
E, EB	East, Eastbound
ELF	End Left Front
ELR	End Left Rear
ERF	End Right Front
ERR	End Right Rear
FRP	Final Rest Position
I	Interstate Highway
IP	Intermediate Point
KG	Kilogram
KM/H	Kilometers Per Hour
LF	Left Front
LR	Left Rear
M	Meter
N, NB	North, Northbound
NE	Northeast
NW	Northwest
PDOF	Principal Direction of Force
POI	Point of Impact
R	Radius of Curvature
RF	Right Front
RL	Reference Line
RP	Reference Point
RR	Right Rear
S, SB	South, Southbound
SE	Southeast
SW	Southwest
T	Time or Elapsed Time (in seconds)
U.S.	United States Highway
V1	Vehicle Number 1
W, WB	West, Westbound

BODY CONTACTS

SOLID BLACK LINE: PDOF
DASHED BLACK LINE: Secondary
Vehicle Dynamics
SOLID RED LINE: Case Occupant's
Kinematics
DASHED RED LINE: Case Occupant's
Secondary Movement



Case Occupant Body Contacts and Injury Table

Case DSI-93-AB-003

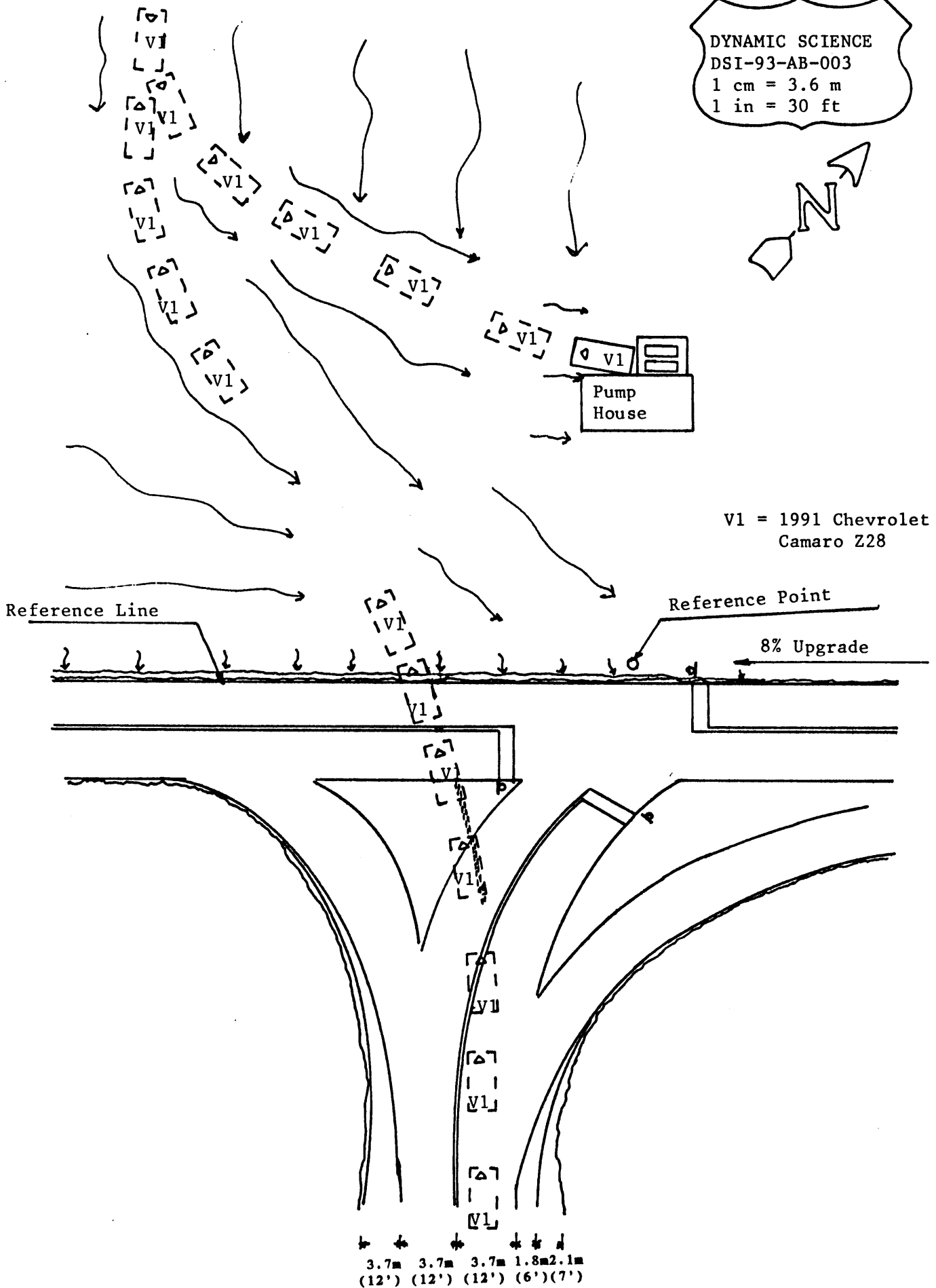
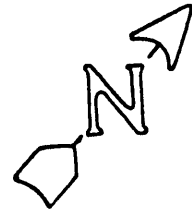
Age: 59 Sex: M Seating position: Left Front

1991 Camaro Z28, Impact Plane: Front

CDC = 12FDLW1; PDOF = 000 degrees; Delta V = 18.5 KPH (11.5 MPH)

OIC	ICD-9	INJURY	SOURCE
2992024.4,0901100	948.32	Burns, 2nd and 3rd degree, 35% TBS	Interior Fire
2441402.3,1061200	861.21	Contusion, right lung	S/W Rim-hub-spoke
2441414.3,1061200	861.22	Laceration, right lung	S/W Rim-hub-spoke
2450220.2,1061100	807.02	Fracture, 2 ribs, right side	S/W Rim-hub-spoke

DYNAMIC SCIENCE
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1 cm = 3.6 m
1 in = 30 ft



COLLISION MEASUREMENTS

Case Number DSI-92-AB-003

Reference Point: Utility Pole .9 m (3 ft) North of North edge of Roadway

Reference Line: North edge of East/West Roadway

DATA POINT	LONGITUDINALS	LATERALS
Rotating R/R tire acceleration scuff		
Start	10.3 m (33.8 ft) SW	12.8 m (41.9 ft) SE
End	12.3 m (40.2 ft) SW	6.9 m (22.5 ft) SE
POI - Embankment	14.6 m (48 ft) SW	1.8 m (6 ft) NW
Vault		
Take-off point	16.5 m (54.3 ft) SW	4.9 m (16.1 ft) NW
Landing point	29.3 m (96.2 ft) SW	24.2 m (79.5 ft) NW
Forward roll		
Starts	29.9 m (98.1 ft) SW	24.9 m (81.7 ft) NW
Ends	33.6 m (110.2 ft) SW	48.1 m (157.8 ft) NW
Reverse roll		
Starts	33.6 m (110.2 ft) SW	48.1 m (157.8 ft) NW
Ends	4 m (13 ft) SW	24 m (78.8 ft) NW
FRP	4 m (13 ft) SW	24 m (78.8 ft) NW

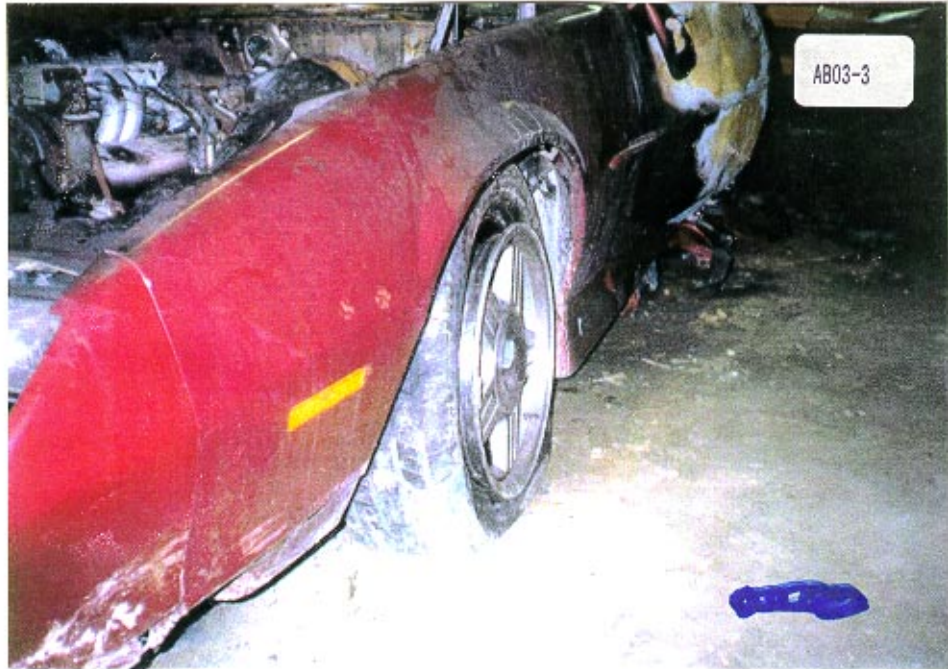
PHOTO INDEX
Case No. DSI-93-AB-003

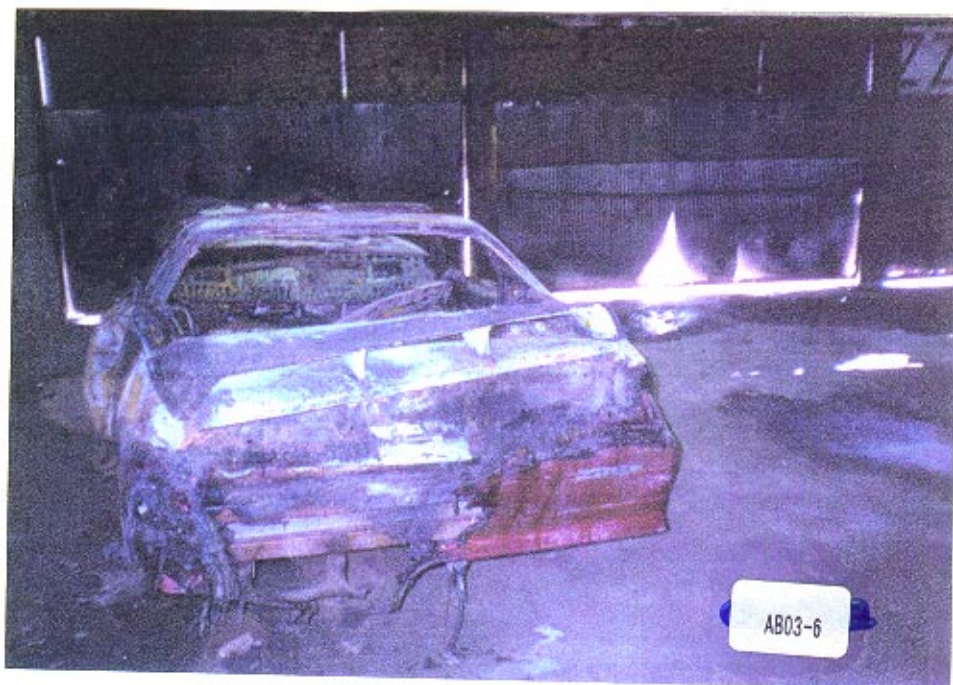
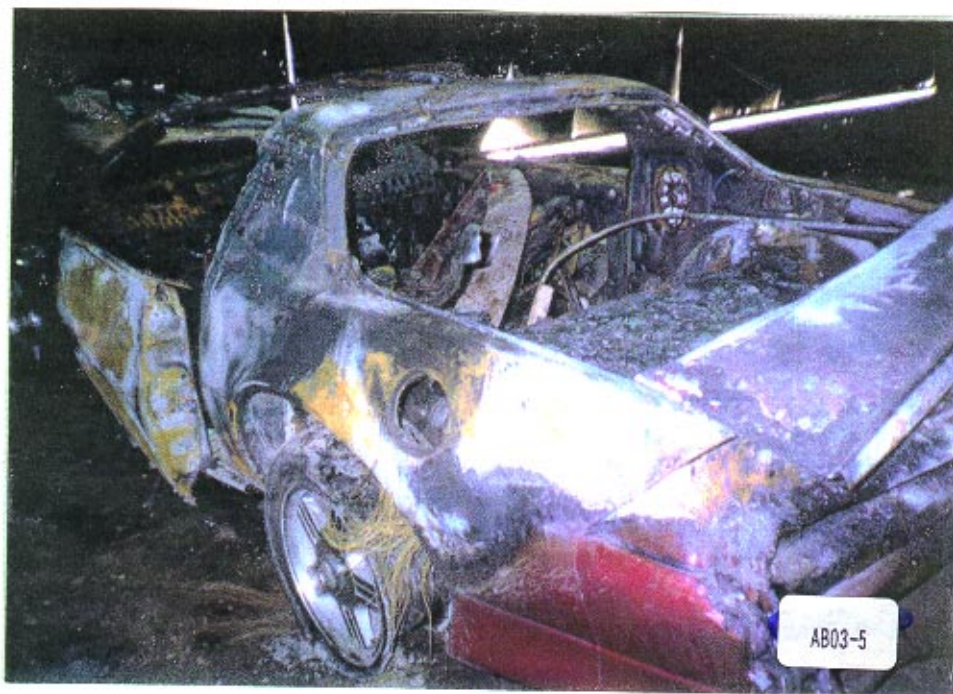
PHOTO NO.	VEHICLE NO.	DIRECTION OF PICTURE	SUBJECT MATTER
1-15	V1	CCW	Exterior views, Vehicle 1
16-18	V1	---	Engine Compartment
19-25	V1	---	Interior views, Vehicle 1
NOTE: All photos taken by a representative of the driver's survivors 26 days post-accident. All photos were provided by the attorney for the driver's estate.			

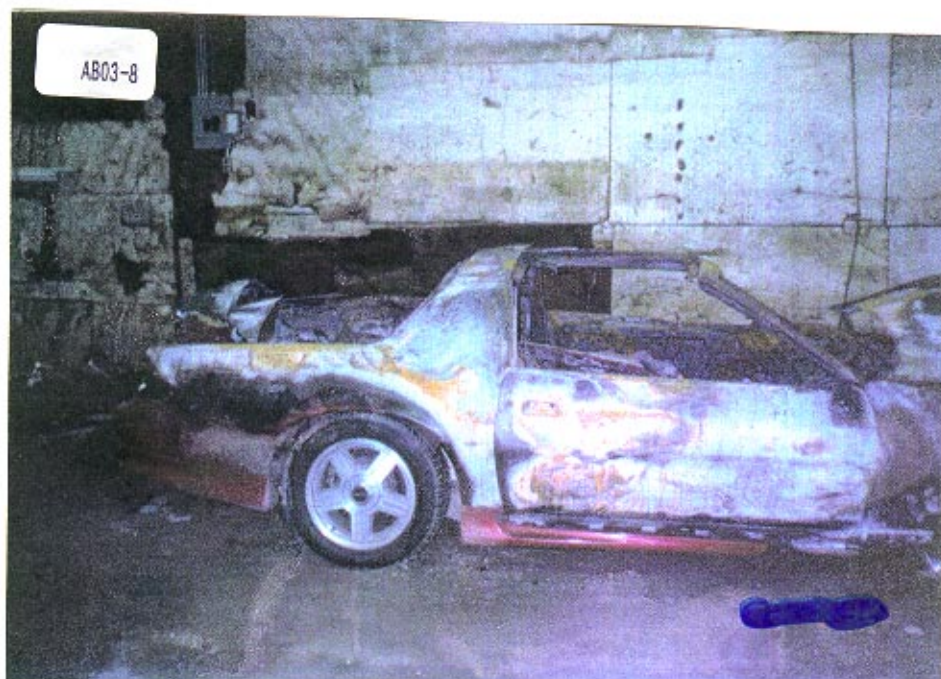
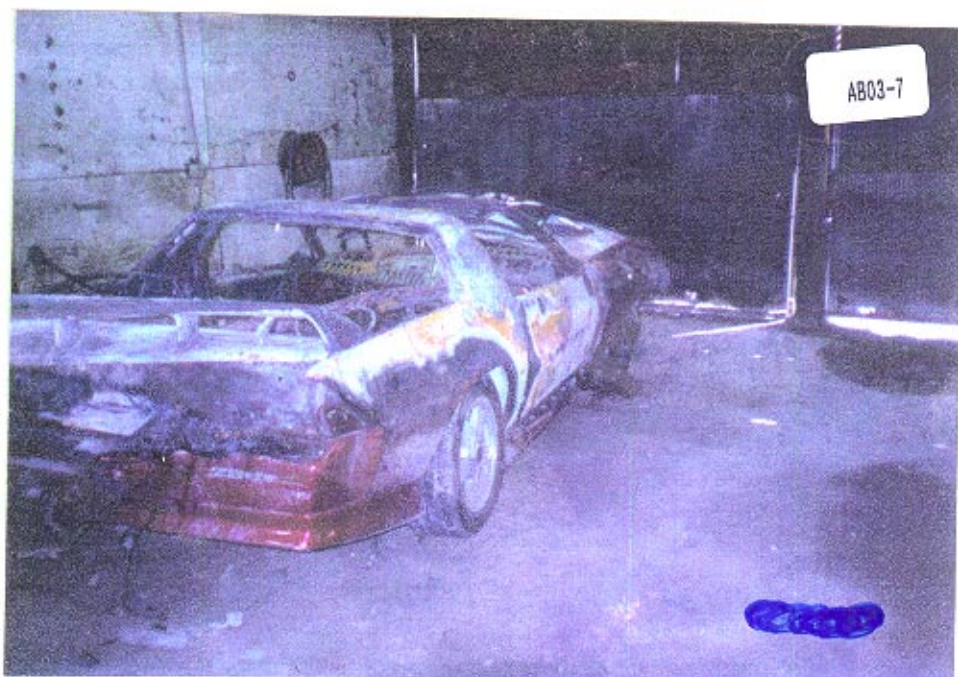
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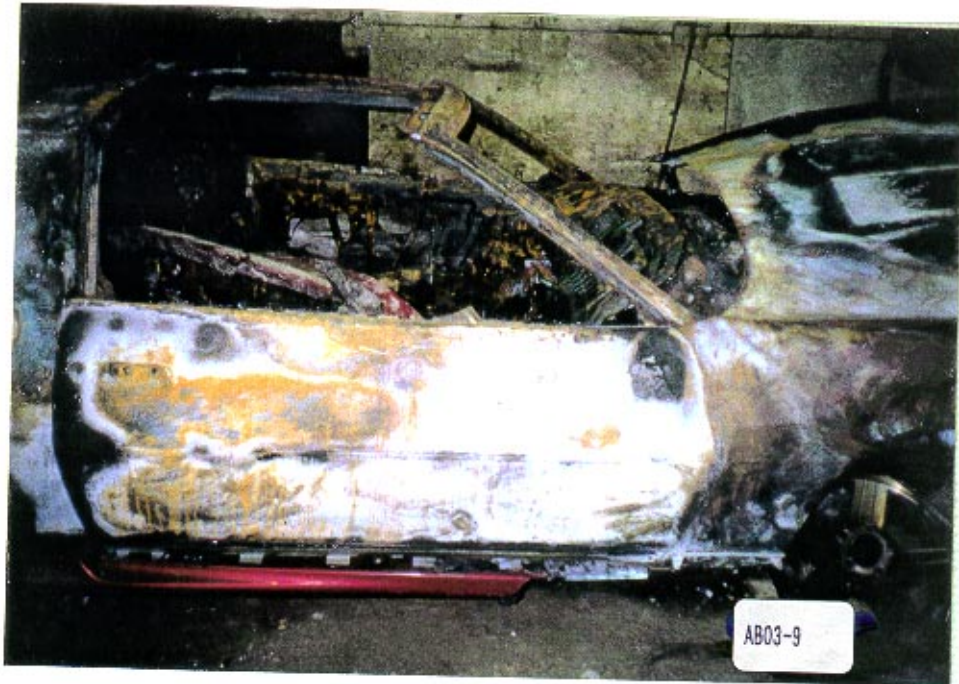
SLIDE NO.	VEHICLE NO.	DIRECTION OF PICTURE	SUBJECT MATTER
1	V1	southeast	Approach path, Vehicle 1
2-9	V1	northwest	Travel path, Vehicle 1
10	V1	West	POI # 1, embankment, Vehicle 1
11	V1	West	Take off point, Vehicle 1
12-13	V1	West	Airborne Travel path, Vehicle 1
14	V1	West	Landing point and forward roll, Vehicle 1
15	V1	southeast	Reverse Travel path, Vehicle 1
16-19	V1	East	Reverse roll, Vehicle 1
20	V1	East	FRP, Vehicle 1
21-22	V1	West	Reverse Roll path, Vehicle 1
23-40	V1	CCW	Exterior views, Vehicle 1 Slides 36-40 - Radiator support and right and left "A" frames of Vehicle 1 undercarriage
41-64	V1	---	Engine compartment, Vehicle 1 Slides 44-50 - Power steering pump and hose connections
65-94	V1	---	Interior views, Vehicle 1 Slides 65-69 Instrument panel frame 66-67 Left side - top/bottom 68-69 Right side - top/bottom Slide 92 - Heater/AC port, right side dashboard - fire entry into interior
95-119	V1	---	Airbag tether and exhaust vents

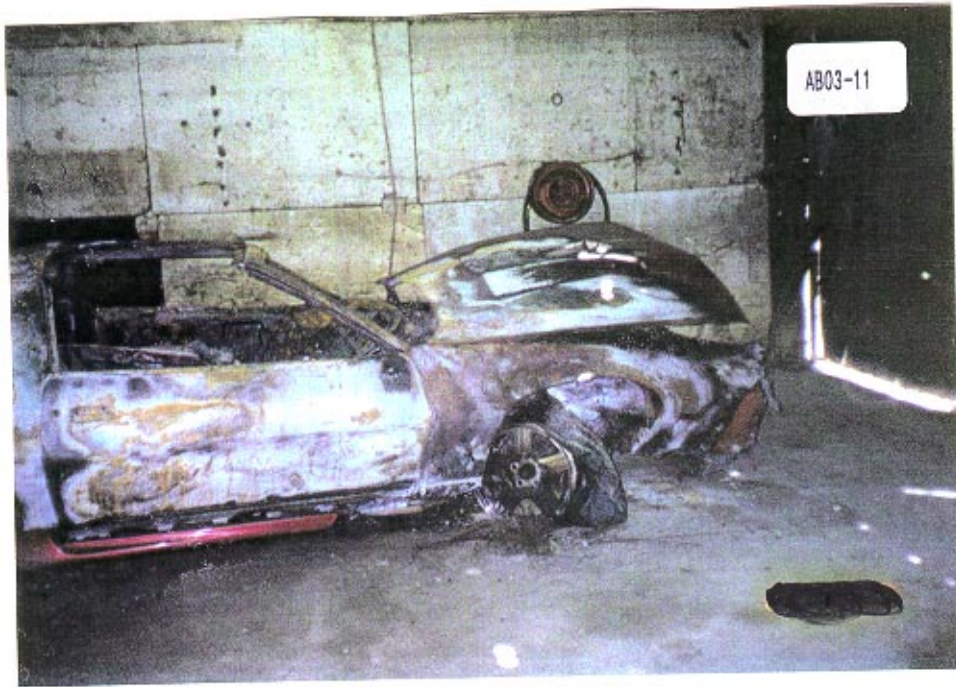




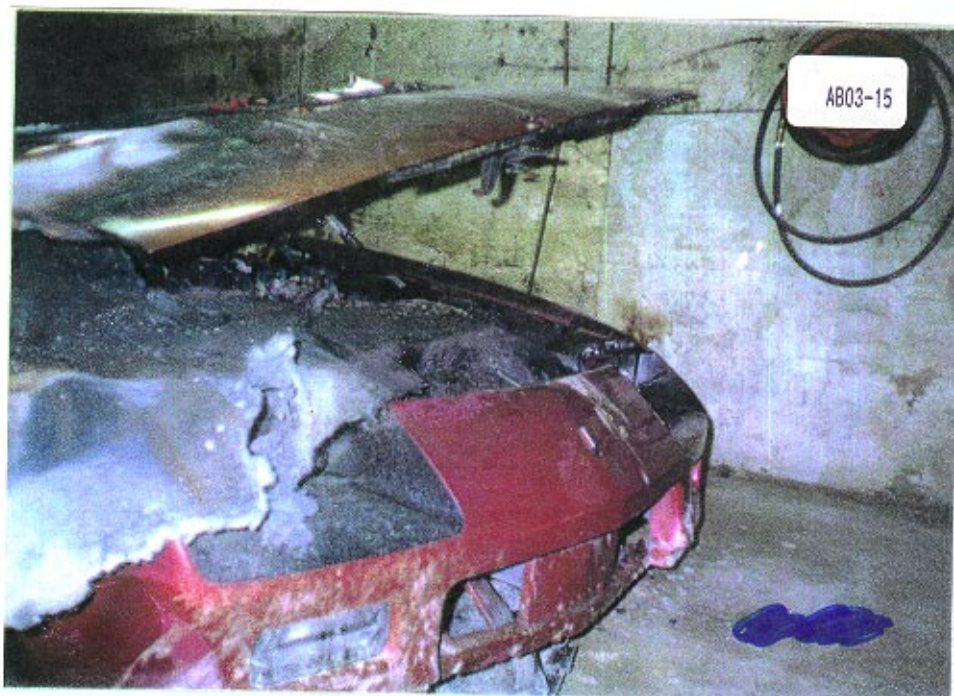


























































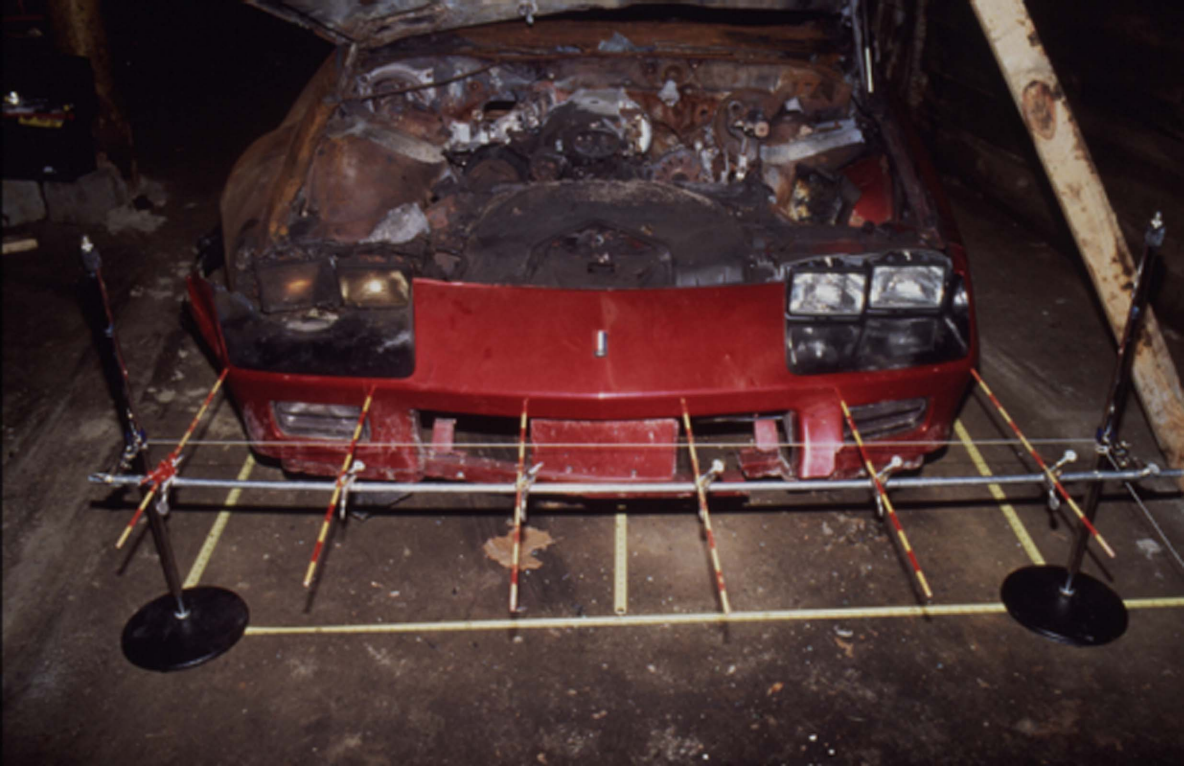




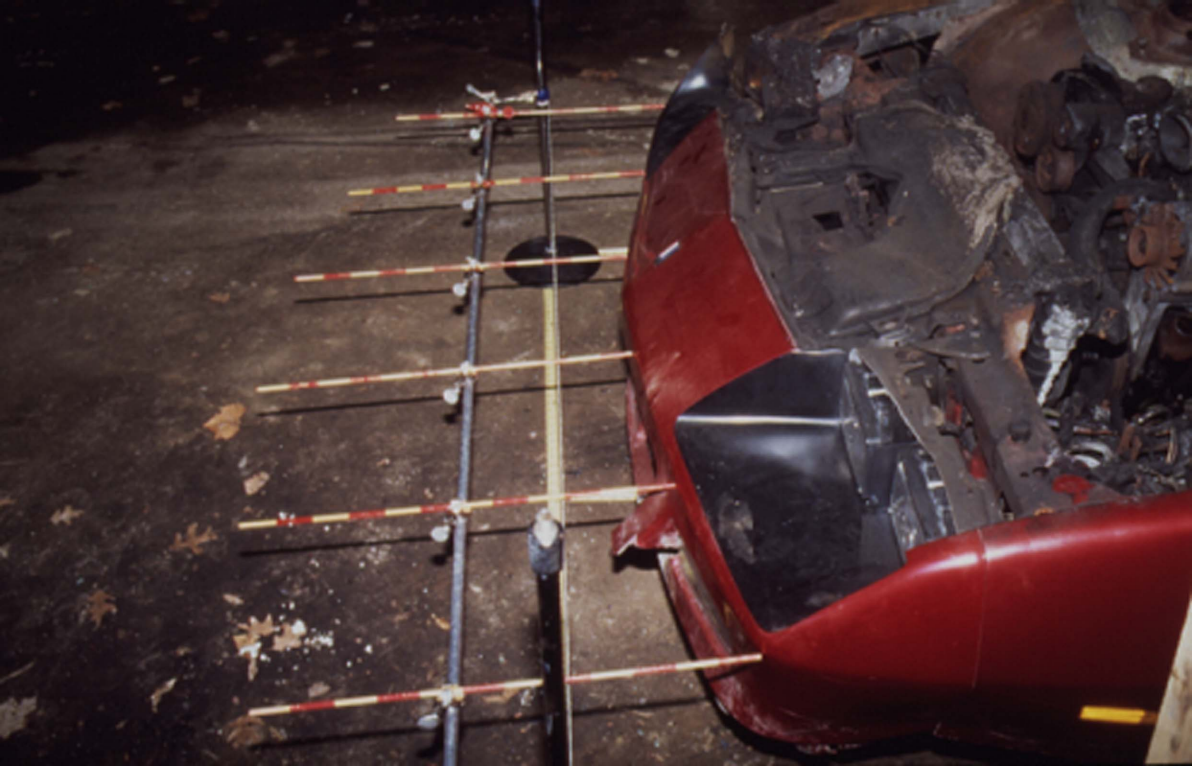




























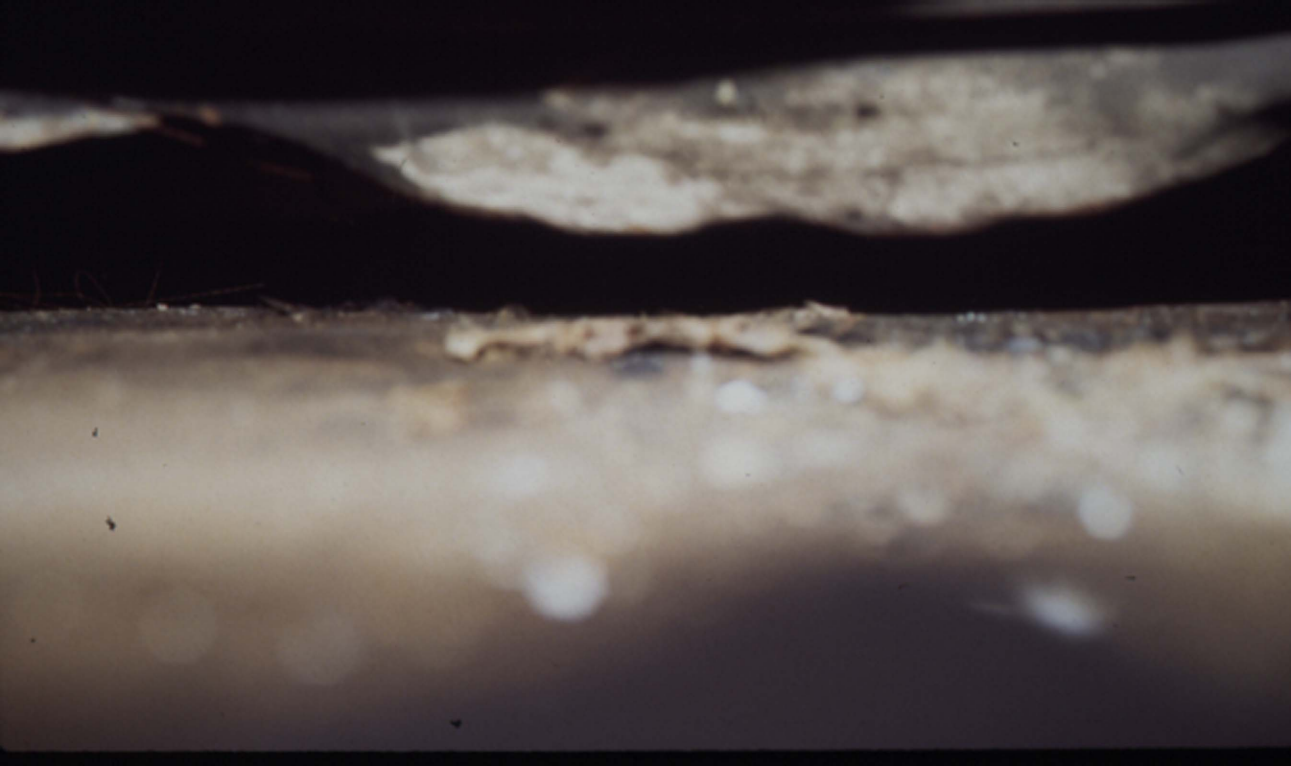
















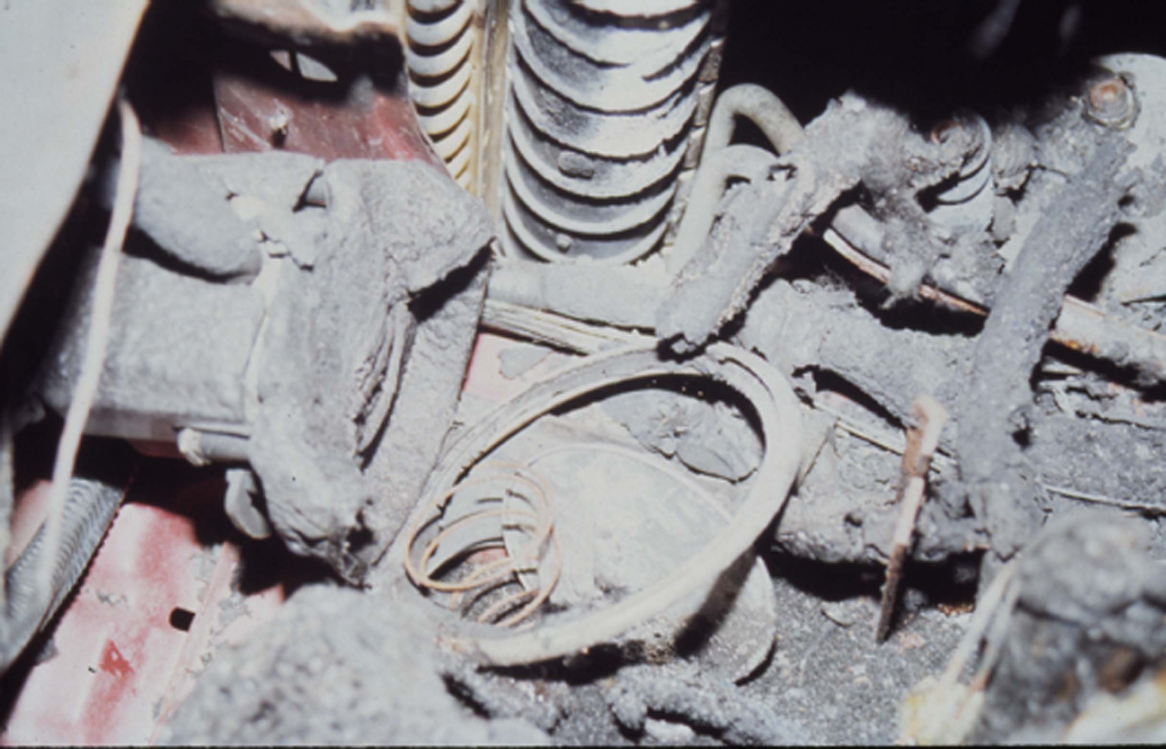






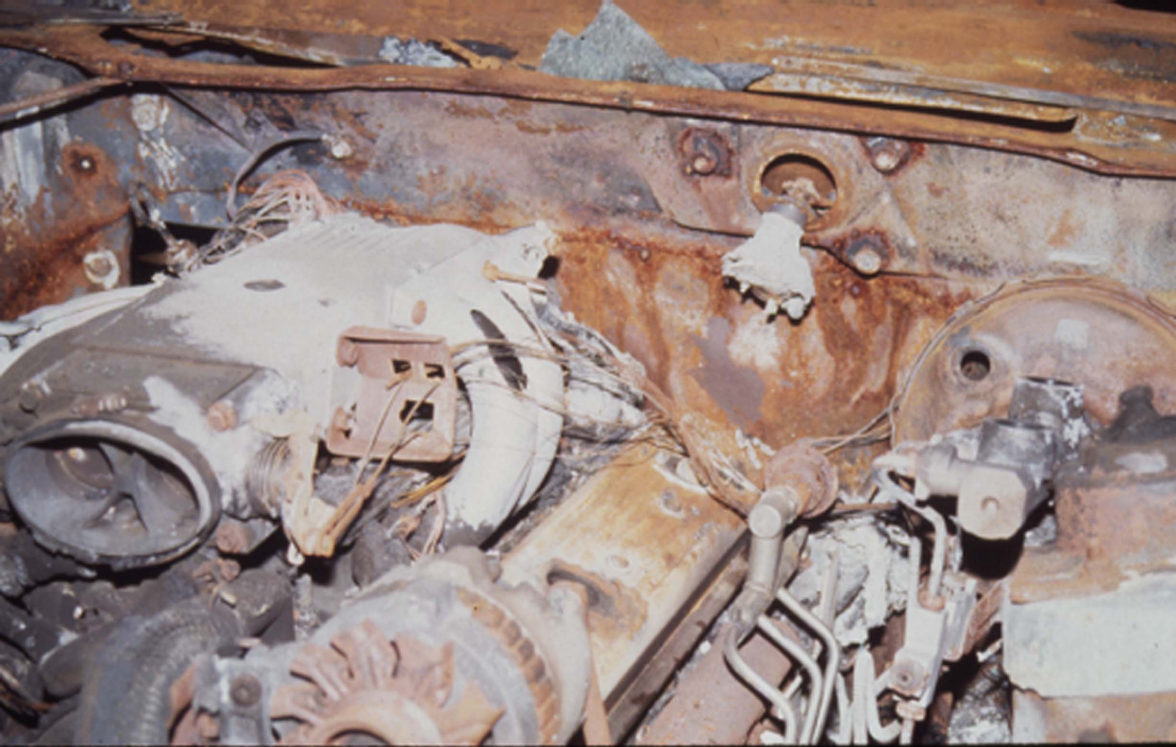
































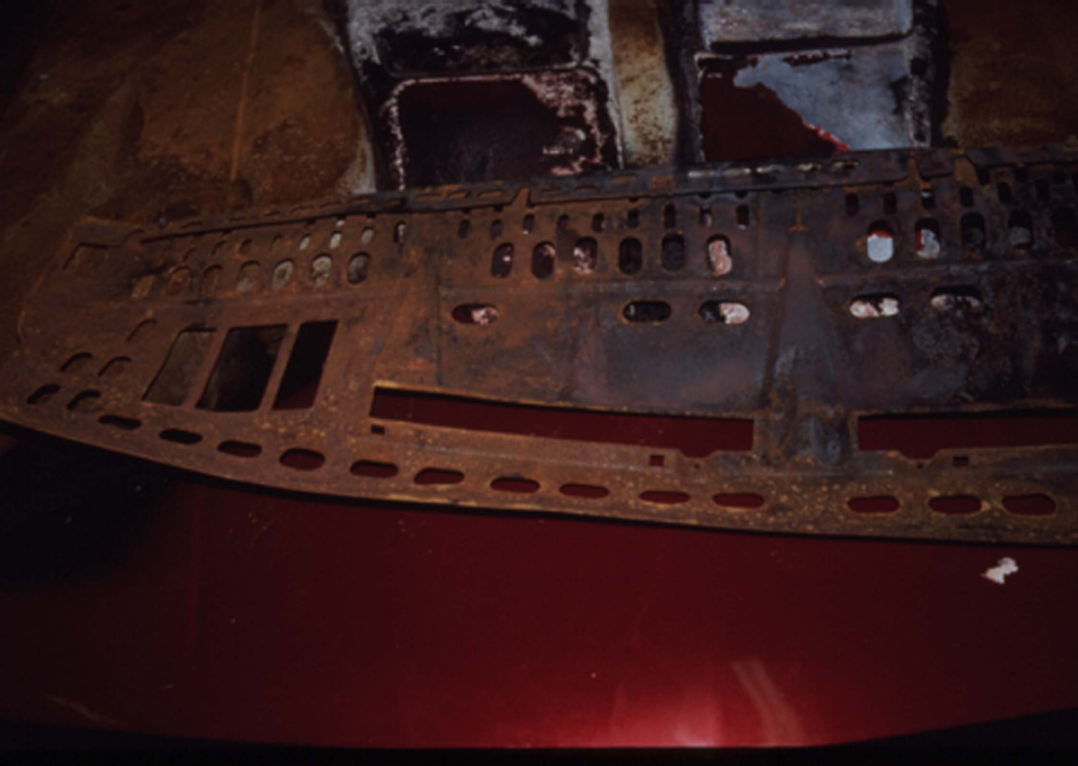




























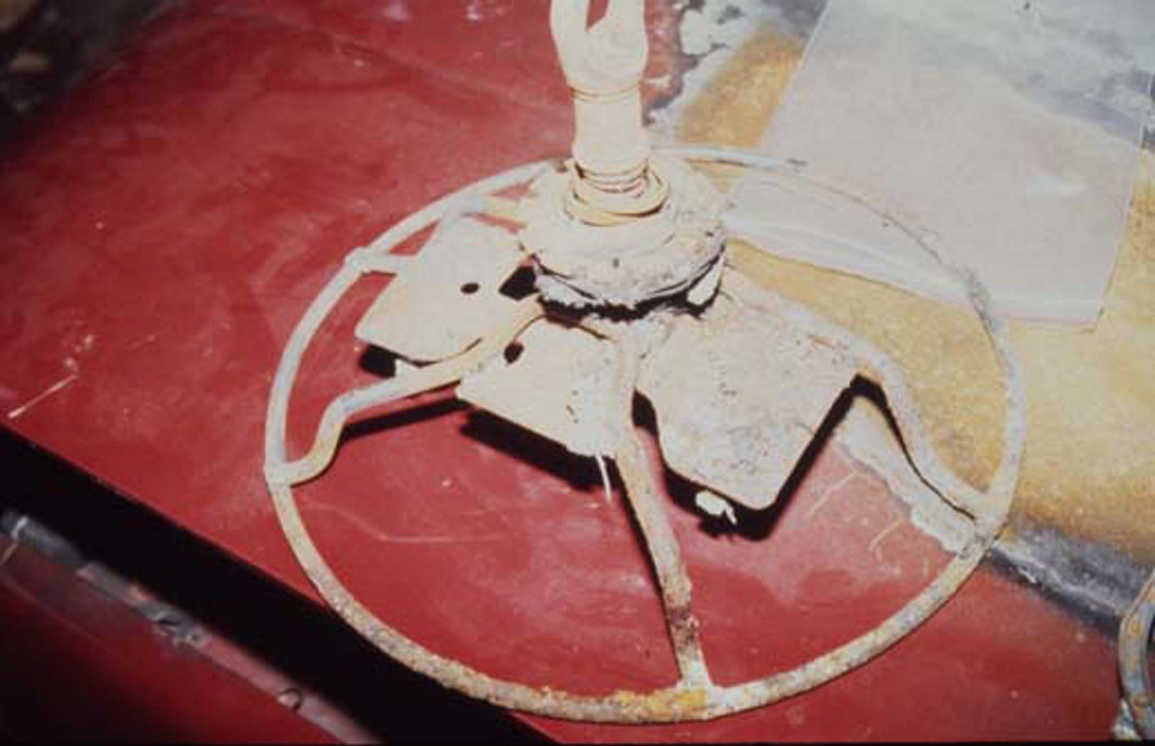








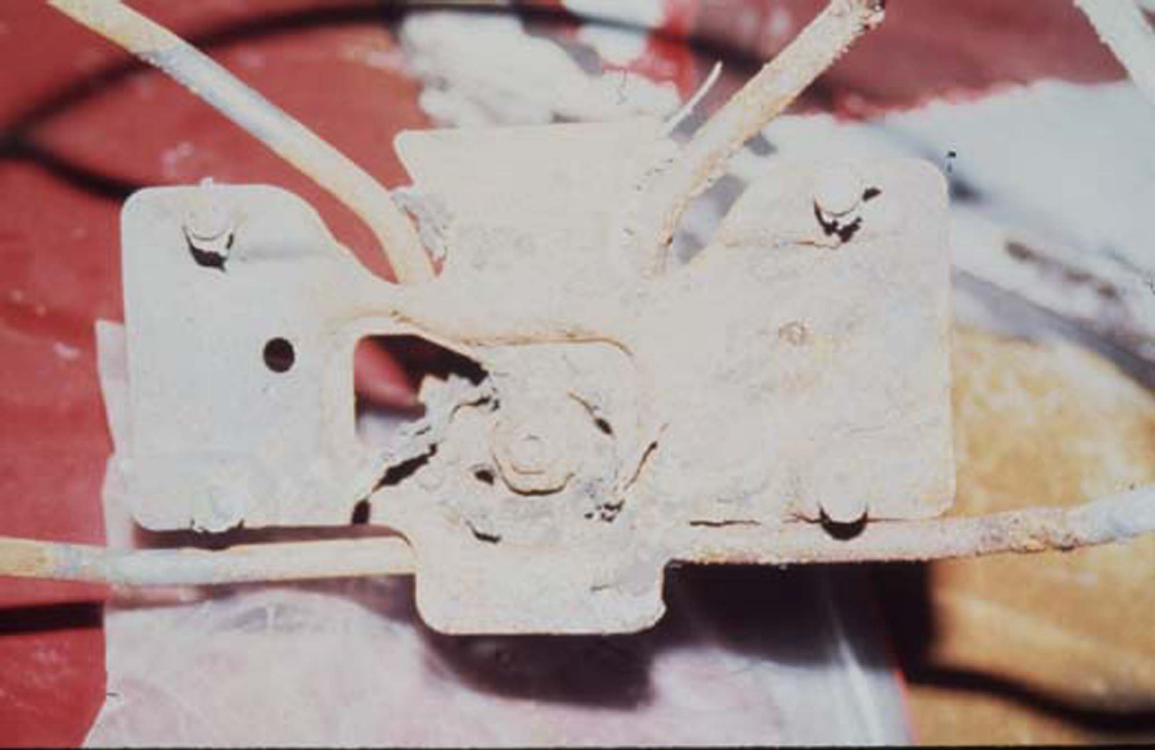


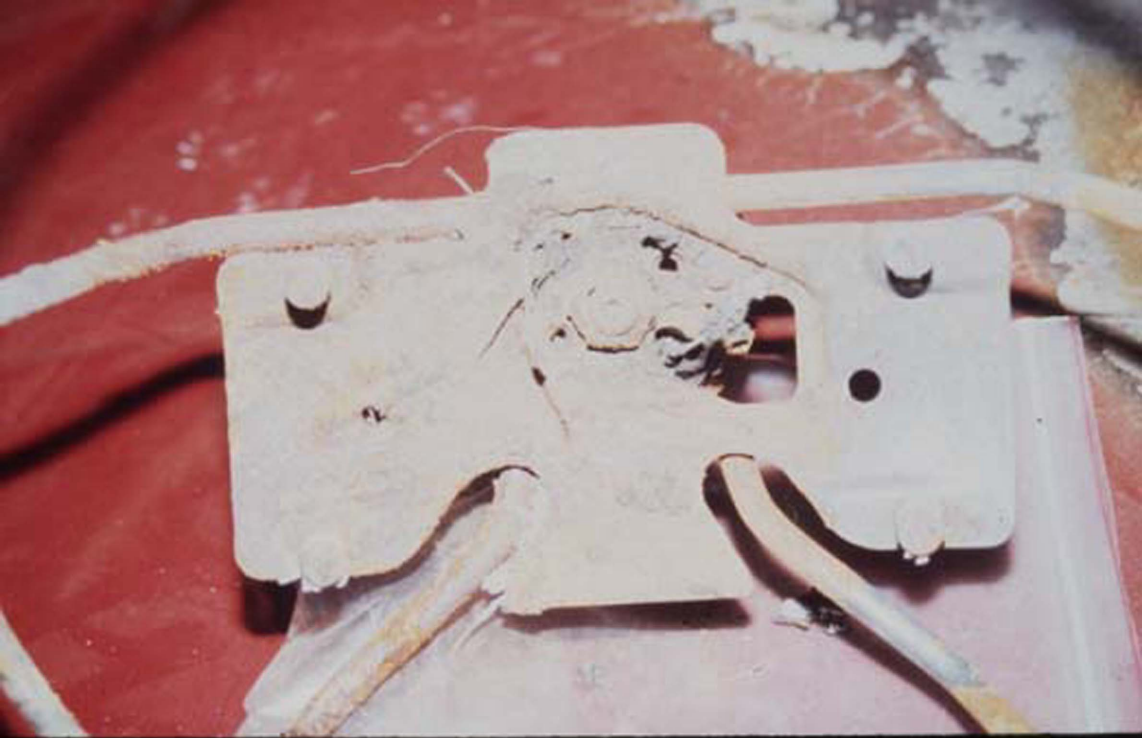






















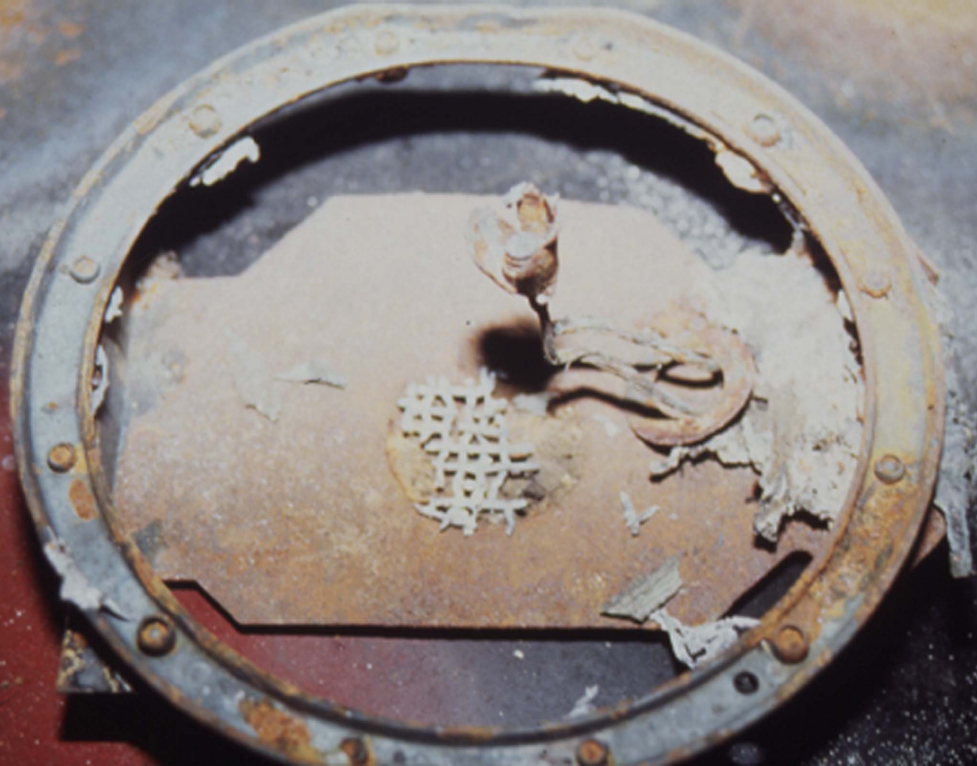
















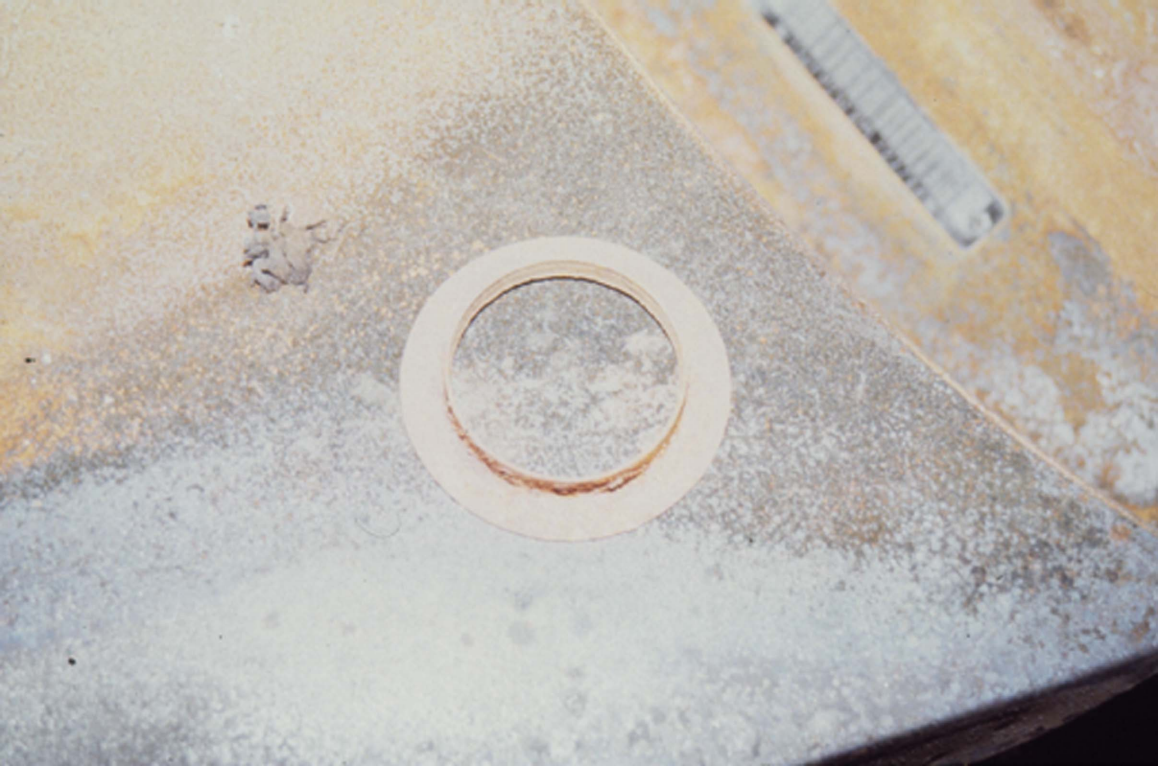








































U.S. Department of Transportation

National Highway Traffic Safety
Administration

ACCIDENT FORM

NATIONAL ACCIDENT SAMPLING SYSTEM
CRASHWORTHINESS DATA SYSTEM

1. Primary Sampling Unit Number

2. Case Number - Stratum DSI-93-AB-φφ3

IDENTIFICATION

3. Number of General Vehicle
Forms Submittedφ 14. Date of Accident
(Month, Day, Year)SUMMER / WEEKDAY / 9 2

5. Time of Accident

EARLY MORNING

Code reported military time of accident.

NOTE: Midnight = 2400
Unknown = 9999

SPECIAL STUDIES - INDICATORS

Check (✓) each special study (SS14-SS18 below)
that has been completed; code 1 for the checked
special studies and 0 for the special studies not
checked.6. SS14 Fatal AOPSφ7. SS15 Administrative Useφ8. SS16φ9. SS17φ10. SS18φ

NUMBER OF EVENTS

11. Number of Recorded Events
in This Accidentφ 5Code the number of events which occurred
in this accident.

ACCIDENT EVENTS

For each event that occurred in the accident, code the lowest numbered vehicle in the left columns and the other
involved vehicle or object on the right.

Accident Event Sequence Number	Vehicle Number	Class Of Vehicle	General Area of Damage	Vehicle Number or Object Contacted	Class Of Vehicle	General Area of Damage
12. <u>0 1</u>	13. <u>φ 1</u>	14. <u>φ 2</u>	15. <u>F</u>	16. <u>4 4</u>	17. <u>φ φ</u>	18. <u>φ</u>
19. <u>0 2</u>	20. <u>φ 1</u>	21. <u>φ 2</u>	22. <u>F</u>	23. <u>6 1</u>	24. <u>φ φ</u>	25. <u>φ</u>
26. <u>0 3</u>	27. <u>φ 1</u>	28. <u>φ 2</u>	29. <u>F</u>	30. <u>6 1</u>	31. <u>φ φ</u>	32. <u>φ</u>
33. <u>0 4</u>	34. <u>φ 1</u>	35. <u>φ 2</u>	36. <u>U</u>	37. <u>6 1</u>	38. <u>φ φ</u>	39. <u>φ</u>
40. <u>0 5</u>	41. <u>φ 1</u>	42. <u>φ 2</u>	43. <u>B</u>	44. <u>5 8</u>	45. <u>φ φ</u>	46. <u>φ</u>

IF GREATER THAN FIVE EVENTS, CONTINUE CODING ON THE ACCIDENT EVENT SUPPLEMENT

CODES FOR CLASS OF VEHICLE

- (00) Not a motor vehicle
- (01) Subcompact/mini (wheelbase < 254 cm)
- (02) Compact (wheelbase ≥ 254 but < 265 cm)
- (03) Intermediate (wheelbase ≥ 265 but < 278 cm)
- (04) Full size (wheelbase ≥ 278 but < 291 cm)
- (05) Largest (wheelbase ≥ 291 cm)
- (09) Unknown passenger car size
- (11) Compact utility vehicle
- (12) Large utility vehicle (≤ 4,500 kgs GVWR)
- (13) Passenger van (≤ 4,500 kgs GVWR)
- (14) Other van (≤ 4,500 kgs GVWR)
- (15) Pickup truck (≤ 4,500 kgs GVWR)
- (18) Other truck (≤ 4,500 kgs GVWR)
- (19) Unknown light truck type
- (20) School bus
- (21) Other bus
- (22) Truck (> 4,500 kgs GVWR)
- (23) Tractor without trailer
- (24) Tractor-trailer(s)
- (25) Motored cycle
- (28) Other vehicle
- (99) Unknown

CODES FOR GENERAL AREA OF DAMAGE (GAD)

CDS APPLICABLE AND OTHER VEHICLES

- (O) Not a motor vehicle
- (N) Noncollision
- (F) Front
- (R) Right side
- (L) Left side
- (B) Back
- (T) Top
- (U) Undercarriage
- (9) Unknown

TDC APPLICABLE VEHICLES

- (O) Not a motor vehicle
- (N) Noncollision
- (F) Front
- (R) Right side
- (L) Left side
- (B) Back of unit with cargo
area (rear of trailer or
straight truck)
- (D) Back (rear of tractor)
- (C) Rear of cab
- (V) Front of cargo area
- (T) Top
- (U) Undercarriage
- (9) Unknown

CODES FOR VEHICLE NUMBER OR OBJECT CONTACTED

(01-30) — Vehicle Number

Noncollision

- (31) Overturn — rollover
- (32) Fire or explosion
- (33) Jackknife
- (34) Other intraunit damage (specify):

(35) Noncollision injury

(38) Other noncollision (specify):

(39) Noncollision — details unknown

Collision With Fixed Object

- (41) Tree (≤ 10 cm in diameter)
- (42) Tree (> 10 cm in diameter)
- (43) Shrubbery or bush
- (44) Embankment

(45) Breakaway pole or post (any diameter)

Nonbreakaway Pole or Post

- (50) Pole or post (≤ 10 cm in diameter)
- (51) Pole or post (> 10 cm but ≤ 30 cm in
diameter)
- (52) Pole or post (> 30 cm in diameter)
- (53) Pole or post (diameter unknown)

(54) Concrete traffic barrier

(55) Impact attenuator

(56) Other traffic barrier (includes guardrail)
(specify):

(57) Fence

(58) Wall

(59) Building

(60) Ditch or culvert

(61) Ground

(62) Fire hydrant

(63) Curb

(64) Bridge

(68) Other fixed object (specify):

(69) Unknown fixed object

Collision with Nonfixed Object

(71) Motor vehicle not in-transport

(72) Pedestrian

(73) Cyclist or cycle

(74) Other nonmotorist or conveyance

(75) Vehicle occupant

(76) Animal

(77) Train

(78) Trailer, disconnected in transport

(88) Other nonfixed object (specify):

(89) Unknown nonfixed object

(98) Other event (specify):

(99) Unknown event or object



GENERAL VEHICLE FORM

1. Primary Sampling Unit Number 2. Case Number - Stratum DSI-93-AB-0033. Vehicle Number 01

VEHICLE IDENTIFICATION

4. Vehicle Model Year 91
Code the last two digits of the model year
(99) Unknown5. Vehicle Make (specify): 20
CHEVROLET
Applicable codes are found in your
NASS Data Collection, Coding and
Editing Manual.
(99) Unknown6. Vehicle Model (specify): 009
CAMARO Z28
Applicable codes are found in your
NASS Data Collection, Coding and
Editing Manual.
(999) Unknown7. Body Type 02
Note: Applicable codes may be found on
the back of this page.8. Vehicle Identification Number
1G1FP23F8M1XXXXXX
Left justify; Slash zeros and letter Z (0 and Z)
No VIN—Code all zeros
Unknown—Code all nine's

OFFICIAL RECORDS

9. Police Reported Vehicle Disposition 1
(0) Not towed due to vehicle damage
(1) Towed due to vehicle damage
(9) Unknown10. Police Reported Travel Speed 999
Code to the nearest kph (NOTE: 000 means
less than 0.5 kph)
(160) 159.5 kph and above
(999) Unknown
 mph X 1.6093 = kph11. Police Reported Alcohol Presence 7
(0) No alcohol present
(1) Yes (alcohol present)
(7) Not reported
(8) No driver present
(9) UnknownNote: See variables 37 through 55
(Page 4) for information on Other Drugs12. Alcohol Test Result For Driver 26
Code actual value (decimal implied
before first digit—0.xx)
(95) Test refused
(96) None given
(97) AC test performed, results unknown
(98) No driver present
(99) UnknownSource: PAR

ACCIDENT RELATED

13. Speed Limit 072
(000) No statutory limit
Code posted or statutory speed limit
in kph
(999) Unknown45 mph X 1.6093 = 072 kph14. Attempted Avoidance Maneuver 01
(00) No impact
(01) No avoidance actions
(02) Braking (no lockup)
(03) Braking (lockup)
(04) Braking (lockup unknown)
(05) Releasing brakes
(06) Steering left
(07) Steering right
(08) Braking and steering left
(09) Braking and steering right
(10) Accelerating
(11) Accelerating and steering left
(12) Accelerating and steering right
(97) No driver present
(98) Other action (specify):
(99) Unknown15. Accident Type 14
Applicable codes may be found on the
back of page two of this field form
(00) No impact
Code the number of the diagram that
best describes the accident circumstance
(98) Other accident type (specify):
(99) Unknown

**** SKIP TO VARIABLE GV37 IF GV07 DOES NOT EQUAL 01-49 ****

CODES FOR BODY TYPE

CDS APPLICABLE VEHICLES

Automobiles

- (01) Convertible (excludes sun-roof, t-bar)
- (02) 2-door sedan, hardtop, coupe
- (03) 3-door/2-door hatchback
- (04) 4-door sedan, hardtop
- (05) 5-door/4-door hatchback
- (06) Station wagon (excluding van and truck based)
- (07) Hatchback, number of doors unknown
- (08) Other automobile type (specify): _____
- (09) Unknown automobile type

Automobile Derivatives

- (10) Auto based pickup (includes El Camino, Caballero, Ranchero, Brat, and Rabbit pickup)
- (11) Auto based panel (cargo station wagon, auto based ambulance/hearse)
- (12) Large limousine - more than four side doors or stretched chassis
- (13) Three-wheel automobile or automobile derivative

Utility Vehicles ($\leq 4,500$ kgs GVWR)

- (14) Compact utility (Jeep CJ-2 - CJ-7, Scrambler, Golden Eagle, Renegade, Laredo, Wrangler, Cherokee [84 and after], Dispatcher, Raider, Bronco II, Bronco [78 and before], Explorer, S-10 Blazer, Geo Tracker, Bravada, S-15 Jimmy, Thing, Pathfinder, Trooper, Trooper II, Rodeo, Amigo, Navajo, 4-Runner, Montero, Samurai, Sidekick, Rocky)
- (15) Large utility (includes Jeep Cherokee [83 and before], Ramcharger, Trailduster, Bronco-fullsize [78 and after], fullsize Blazer, fullsize Jimmy, Landcruiser, Rover, Scout)
- (16) Utility station wagon (Chevy Suburban, GMC Suburban, Travelall, Grand Wagoneer, includes suburban limousine)
- (19) Utility, unknown body type

Van Based Light Trucks ($\leq 4,500$ kgs GVWR)

- (20) Minivan (Chrysler Town and Country, Caravan, Grand Caravan, Voyager, Grand Voyager, Mini-Ram, Dodge/Plymouth Vista, Aerostar, Villager, Lumina APV, Trans Sport, Silhouette, Astro, Safari, Toyota Van, Toyota Minivan, Previa, Nissan Minivan, Quest, Mitsubishi Minivan, Vanagon/Camper.)
- (21) Large van (B150-B350, Sportsman, Royal, Maxiwagon, Ram, Tradesman, Voyager [83 and before], E150-E350, Econoline, Clubwagon, Chateau, G10-G30, Chevy Van, Beauville, Sport Van, G15-G35, Rally Van, Vandura.)
- (22) Step van or walk-in van ($\leq 4,500$ kgs GVWR)
- (23) Van based motorhome ($\leq 4,500$ kgs GVWR)
- (24) Van based school bus ($\leq 4,500$ kgs GVWR)
- (25) Van based other bus ($\leq 4,500$ kgs GVWR)
- (28) Other van type (Hi-Cube Van, Kary) (specify): _____
- (29) Unknown van type

Light Conventional Trucks (Pickup style cab, $\leq 4,500$ kgs GVWR)

- (30) Compact pickup (D50, Colt P/U, Ram 50, Dakota, Arrow Pickup [foreign], Ranger, Courier, S-10, T-10, LUV, S-15, T-15, Sonoma, Datsun/Nissan Pickup, P'up, Mazda Pickup, Toyota Pickup, Mitsubishi Pickup)
- (31) Large Pickup (Jeep Pickup, Comanche, Ram Pickup, D100-D350, W100-W350, F100-F350, C10-C35, K10-K35, R10-R35, V10-V35, Silverado, Sierra, R100-R500.)

- (32) Pickup with slide-in camper
- (33) Convertible pickup
- (39) Unknown pickup style light conventional truck type

Other Light Trucks ($\leq 4,500$ kgs GVWR)

- (40) Cab chassis based (includes rescue vehicles, light stake, dump, and tow truck)
- (41) Truck based panel
- (42) Light truck based motorhome (chassis mounted)
- (45) Other light conventional truck type
- (48) Unknown light truck type
- (49) Unknown light vehicle type (automobile, utility, van, or light truck)

OTHER VEHICLES

Buses (Excludes Van Based)

- (50) School bus (designed to carry students, not cross country or transit)
- (58) Other bus type (e.g., transit, intercity, bus based motorhome) (specify): _____
- (59) Unknown bus type

Medium/Heavy Trucks ($> 4,500$ kgs GVWR)

- (60) Step van ($> 4,500$ kgs GVWR)
- (61) Single unit straight truck ($4,500$ kgs $<$ GVWR $\leq 8,850$ kgs)
- (62) Single unit straight truck ($8,850$ kgs $<$ GVWR $\leq 12,000$ kgs)
- (63) Single unit straight truck ($> 12,000$ kgs GVWR)
- (64) Single unit straight truck, GVWR unknown
- (65) Medium/heavy truck based motorhome
- (67) Truck-tractor with no cargo trailer
- (68) Truck-tractor pulling one trailer
- (69) Truck-tractor pulling two or more trailers
- (70) Truck-tractor (unknown if pulling trailer)
- (78) Unknown medium/heavy truck type
- (79) Unknown truck type (light/medium/heavy)

Motored Cycles (Does Not Include All-Terrain Vehicles/Cycles)

- (80) Motorcycle
- (81) Moped (motorized bicycle)
- (82) Three-wheel motorcycle or moped
- (88) Other motored cycle (minibike, motorscooter) (specify): _____
- (89) Unknown motored cycle type

Other Vehicles

- (90) ATV (All-Terrain Vehicle) and ATC (All-Terrain Cycle)
- (91) Snowmobile
- (92) Farm equipment other than trucks
- (93) Construction equipment other than trucks
- (97) Other vehicle type
- (99) Unknown body type

OCCUPANT RELATED

16. Driver Presence in Vehicle 1
 (0) Driver not present
 (1) Driver present
 (9) Unknown
17. Number of Occupants This Vehicle 0 1
 (00-96) Code actual number of occupants for this vehicle
 (97) 97 or more
 (99) Unknown
18. Number of Occupant Forms Submitted 0 1

VEHICLE WEIGHT ITEMS

19. Vehicle Curb Weight 1 4 1 0
 Code weight to nearest 10 kilograms.
 (045) Less than 450 kilograms
 (610) 6,100 kilograms or more
 (999) Unknown
0 3 1 0 lbs X .4536 = 1 4 0 8 kgs
 Source: [REDACTED]
20. Vehicle Cargo Weight 0 0 0 0
 Code weight to nearest 10 kilograms.
 (000) Less than 5 kilograms
 (450) 4,500 kilograms or more
 (999) Unknown
 _____ lbs X .4536 = _____ kgs

RECONSTRUCTION DATA

21. Towed Trailing Unit 0
 (0) No towed unit
 (1) Yes—towed trailing unit
 (9) Unknown
22. Documentation of Trajectory Data for This Vehicle 0
 (0) No
 (1) Yes
23. Post Collision Condition of Tree or Pole (For Highest Delta V) 0
 (0) Not collision (for highest delta V) with tree or pole
 (1) Not damaged
 (2) Cracked/sheared
 (3) Tilted <45 degrees
 (4) Tilted ≥45 degrees
 (5) Uprooted tree
 (6) Separated pole from base
 (7) Pole replaced
 (8) Other (specify): _____
 (9) Unknown

24. Rollover 0
 (0) No rollover (no overturning)
Rollover (primarily about the longitudinal axis)
 (1) Rollover, 1 quarter turn only
 (2) Rollover, 2 quarter turns
 (3) Rollover, 3 quarter turns
 (4) Rollover, 4 or more quarter turns (specify): _____
 (5) Rollover--end-over-end (i.e., primarily about the lateral axis)
 (9) Rollover (overturn), details unknown





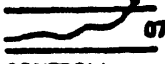
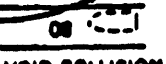





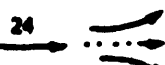
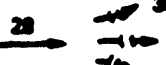
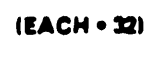


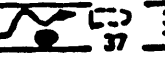
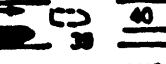



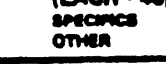

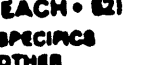
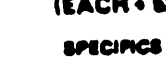

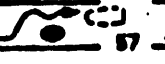
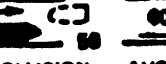
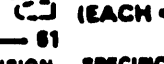

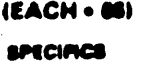
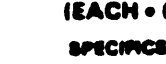










OVERRIDE/UNDERRIDE (THIS VEHICLE)

25. Front Override/Underride (this Vehicle) 0
26. Rear Override/Underride (this Vehicle) 0
 (0) No override/underride, or not an end-to-end impact
Override (see specific CDC)
 (1) 1st CDC
 (2) 2nd CDC
 (3) Other not automated CDC (specify): _____
Underride (see specific CDC)
 (4) 1st CDC
 (5) 2nd CDC
 (6) Other not automated CDC (specify): _____
 (7) Medium/heavy truck or bus override
 (9) Unknown

HEADING ANGLE AT IMPACT FOR HIGHEST DELTA V

Values: (000)-(359) Code actual value
 (997) Noncollision
 (998) Impact with object
 (999) Unknown

27. Heading Angle For This Vehicle 9 9 8
28. Heading Angle For Other Vehicle 9 9 8

Category	Configuration	ACCIDENT TYPES (Includes Intent)				
I Single Driver	A Right Roadside Departure	 01 DRIVE OFF ROAD	 02 CONTROL/ TRACTION LOSS	 03 AVOID COLLISION WITH VEH., PED., ANIM.	04 SPECIFICS OTHER	05 SPECIFICS UNKNOWN
	B Left Roadside Departure	 06 DRIVE OFF ROAD	 07 CONTROL/ TRACTION LOSS	 08 AVOID COLLISION WITH VEH., PED., ANIM.	09 SPECIFICS OTHER	10 SPECIFICS UNKNOWN
	C Forward Impact	 11 PARKED VEH.	 12 STA. OBJECT	 13 PEDESTRIAN/ ANIMAL	 14 END DEPARTURE	15 SPECIFICS OTHER 16 SPECIFICS UNKNOWN
II Same Trafficway Same Direction	D Rear-End	 20 STOPPED 21, 22, 23	 22 SLOWER 24, 25, 26, 27	 24 DECEL. 28, 29, 30, 31	 26 (EACH - 32) SPECIFICS OTHER	 28 (EACH - 33) SPECIFICS UNKNOWN
	E Forward Impact	 34 CONTROL/ TRACTION LOSS	 36 CONTROL/ TRACTION LOSS	 38 AVOID COLLISION WITH VEH.	 40 AVOID COLLISION WITH OBJECT	41 (EACH - 42) (EACH - 43) SPECIFICS OTHER SPECIFICS UNKNOWN
	F Sideswipe Angle	 44 LATERAL MOVE	 46 (EACH - 48) SPECIFICS OTHER	 48 (EACH - 49) SPECIFICS UNKNOWN		
III Same Trafficway Opposite Direction	G Head-On	 50 LATERAL MOVE	 51 (EACH - 52) SPECIFICS OTHER	 53 (EACH - 53) SPECIFICS UNKNOWN		
	H Forward Impact	 54 CONTROL/ TRACTION LOSS	 56 CONTROL/ TRACTION LOSS	 58 AVOID COLLISION WITH VEH.	 60 AVOID COLLISION WITH OBJECT	61 (EACH - 62) (EACH - 63) SPECIFICS OTHER SPECIFICS UNKNOWN
	I Sideswipe Angle	 64 LATERAL MOVE	 66 (EACH - 66) SPECIFICS OTHER	 68 (EACH - 67) SPECIFICS UNKNOWN		
IV Change Trafficway Vehicle Turning	J Turn Across Path	 69 INITIAL OPPOSITE DIRECTIONS	 71 INITIAL SAME DIRECTIONS	 73 (EACH - 74) (EACH - 75) SPECIFICS OTHER SPECIFICS UNKNOWN		
	K Turn Into Path	 77 TURN INTO SAME DIRECTION	 79 TURN INTO OPPOSITE DIRECTIONS	 81 (EACH - 84) (EACH - 85) SPECIFICS OTHER SPECIFICS UNKNOWN		
V Intersecting Paths (Vehicle Damage)	L Straight Paths	 87 (EACH - 88) SPECIFICS OTHER	 89 (EACH - 91) SPECIFICS UNKNOWN			
VI Miscellaneous	M Backing Etc.	 92 BACKING VEH.	 93 OTHER VEH. OR OBJECT	95 Other Accident Type 96 Unknown Accident Type 98 No Impact		

29. Basis for Total Delta V (highest)

5*Delta V Calculated*

- (1) CRASH program—damage only routine
 (2) CRASH program—damage and trajectory routine
 (3) Missing vehicle algorithm

Delta V Not Calculated

- (4) At least one vehicle (which may be this vehicle) is beyond the scope of an acceptable reconstruction program, regardless of collision conditions.
 (5) All vehicles within scope (CDC applicable) of CRASH program but one of the collision conditions is beyond the scope of the CRASH program or other acceptable reconstruction technique, regardless of adequacy of damage data.
 (6) All vehicle and collision conditions are within scope of one of the acceptable reconstruction programs, but there is insufficient data available.

COMPUTER GENERATED DELTA V

30. Total Delta V

Secondary Highest

9 9 918.5 Nearest kph19

(11.5 MPH)

(NOTE: 000 means less than
 0.5 kph)
 (160) 159.5 kph and above
 (999) Unknown

(12 MPH)

31. Longitudinal Component of
Delta V+
- 9 9 9-18.5 Nearest kph-19

(-11.5 MPH)

(NOTE: 000 means greater than
 -0.5 kph and less than +0.5 kph)
 (±160) ±159.5 kph and above
 (999) Unknown

(-12 MPH)

Secondary

Highest

32. Lateral Component of Delta V - 9 9 90 Nearest kph

(NOTE: 000 means greater than
 -0.5 kph and less than +0.5 kph)
 (±160) ±159.5 kph and above
 (999) Unknown

33. Energy Absorption

9 9 9 . 9 0 0

19680.7 Nearest 100 joules 19,700
 (14513.9 ft/lbs) (14,544 ft/lbs)
 (NOTE: 0000 means less than 50 joules)
 (9997) 999,650 joules or more
 (9999) Unknown

34. Confidence In Reconstruction Program
Results (For Highest Delta V)

- (0) No reconstruction
 (1) Collision fits model — results appear reasonable
 (2) Collision fits model — results appear high
 (3) Collision fits model — results appear low
 (4) Borderline reconstruction — results appear reasonable

35. Type of Vehicle Inspection

- (0) No inspection
 (1) Complete inspection
 (2) Partial inspection (specify):

36. Is this an AOPS Vehicle?

- (0) No
 (1) Yes - researcher determined
 (2) VIN determined air bag system
 (3) VIN determined automatic (passive) belts
 (4) VIN determined air bag and automatic (passive) belts

IS OLDMISS APPLICABLE FOR THIS VEHICLE? [] YES [X] NO

IF YES: IS A COMPLETED OLDMISS PROGRAM SUMMARY INCLUDED? [] YES [X] NO

37. Police Reported Other Drug Presence 7

- (0) No other drugs present
- (1) Yes (other drug present)
- (7) Not reported
- (8) No driver present
- (9) Unknown

38. Police Reported Drug Evaluation Classification (DEC) Test For Driver 9

- (0) No DEC process available or given
- (1) DEC process given, results known
- (2) DEC process given, results unknown
- (3) DEC process available, unknown if given
- (8) No driver present

39. Other Drug Specimen Test Type For Driver 9

- (0) No specimen test given
- (1) Blood test
- (2) Urine test
- (3) Other specimen tests (specify): _____
- (7) Unspecified specimen test
- (8) No driver present
- (9) Unknown if specimen test given

DRUG EVALUATION CLASSIFICATION

OTHER DRUGS TEST RESULTS FOR DRIVER

	DEC Test Results	Specimen Test Results
Narcotic Drug	40. <u>9</u>	41. <u>9</u>
Depressant Drug	42. <u>9</u>	43. <u>9</u>
Stimulant Drug	44. <u>9</u>	45. <u>9</u>
Hallucinogen Drug	46. <u>9</u>	47. <u>9</u>
Cannabinoid Drug	48. <u>9</u>	49. <u>9</u>
Phencyclidine (PCP)	50. <u>9</u>	51. <u>9</u>
Inhalant Drug	52. <u>9</u>	53. <u>9</u>
Other Drug (Excluding Nicotine, Aspirin, Alcohol, Drugs Administered Post-Crash)	54. <u>9</u>	55. <u>9</u>

Codes For DEC Test Results

- (0) No DEC test given
- (1) Passed DEC test
- (2) Failed DEC test
- (3) DEC test given—results unknown
- (8) No driver present
- (9) Unknown if DEC test given

Codes for Specimen Test Results

- (0) No specimen test given
- (1) Drug not found in specimen
- (2) Drug found in specimen
- (7) Specimen test given, results unknown or not obtained
- (8) No driver present
- (9) Unknown if specimen test given

OTHER DATA**56. Driver's Zip Code**

- (00000) Driver not present
 (00001) Driver not a resident of U.S. or territories
 Code actual 5-digit zip code
 (99999) Unknown

57. Driver's Race/Ethnic Origin

- (0) Driver not present
 (1) White (non-Hispanic)
 (2) Black (non-Hispanic)
 (3) White (Hispanic)
 (4) Black (Hispanic)
 (5) American Indian, Eskimo or Aleut
 (6) Asian or Pacific Islander
 (8) Other (specify):
 (9) Unknown

58. Vehicle Special Use (This Trip)

- (0) No special use
 (1) Taxi
 (2) Vehicle used as school bus
 (3) Vehicle used as other bus
 (4) Military
 (5) Police
 (6) Ambulance
 (7) Fire truck or car
 (8) Other (specify):
 (9) Unknown

ROLLOVER DATA

If GV07 (Body Type) \neq 1-49, leave GV59-GV63 blank.
 If GV24 (Rollover) = 0, then GV59-GV63 must equal 0.
 If GV24 = 9, then GV59-GV63 must equal 9.

59. Rollover Initiation Type

- (0) No rollover
 (1) Trip-over
 (2) Flip-over
 (3) Turn-over
 (4) Climb-over
 (5) Fall-over
 (6) Bounce-over
 (7) Collision with another vehicle
 (8) Other rollover initiation type (specify):
 (9) Unknown rollover initiation type

60. Location of Rollover Initiation

- (0) No rollover
 (1) On roadway
 (2) On shoulder—paved
 (3) On shoulder—unpaved
 (4) On roadside or divided trafficway median
 (9) Unknown

61. Rollover Initiation Object Contacted**62. Location on Vehicle Where Initial Principal Tripping Force Is Applied**

- (0) No rollover
 (1) Wheels/tires
 (2) Side plane
 (3) End plane
 (4) Undercarriage
 (5) Other location on vehicle (specify):
 (8) Non-contact rollover forces (specify):
 (9) Unknown

63. Direction of Initial Roll

- (0) No rollover
 (1) Roll right - primarily about the longitudinal axis
 (2) Roll left - primarily about the longitudinal axis
 (5) End-over-end (i.e., primarily about the lateral axis)
 (9) Unknown roll direction

PRECRASH DATA**64. Pre-Event Movement (Prior to Recognition of Critical Event)**

- (01) Going straight
 (02) Slowing or stopping in traffic lane
 (03) Starting in traffic lane
 (04) Stopped in traffic lane
 (05) Passing or overtaking another vehicle
 (06) Disabled or parked in travel lane
 (07) Leaving a parking position
 (08) Entering a parking position
 (09) Turning right
 (10) Turning left
 (11) Making a U-turn
 (12) Backing up (other than for parking position)
 (13) Negotiating a curve
 (14) Changing lanes
 (15) Merging
 (16) Successful avoidance maneuver to a previous critical event
 (97) Other (specify):
 (98) No driver present
 (99) Unknown

CODES FOR ROLLOVER INITIATION OBJECT CONTACTED

- (00) No rollover
- (01-30) — Vehicle Number

Noncollision

- (31) Turn-over — fall-over
- (33) Jackknife

Collision With Fixed Object

- (41) Tree (≤ 10 cm in diameter)
- (42) Tree (> 10 cm in diameter)
- (43) Shrubbery or bush
- (44) Embankment

- (45) Breakaway pole or post (any diameter)

Nonbreakaway Pole or Post

- (50) Pole or post (≤ 10 cm in diameter)
- (51) Pole or post (> 10 cm but ≤ 30 cm in diameter)
- (52) Pole or post (> 30 cm in diameter)
- (53) Pole or post (diameter unknown)

- (54) Concrete traffic barrier
- (55) Impact attenuator
- (56) Other traffic barrier (includes guardrail)
(specify): _____

- (57) Fence
- (58) Wall
- (59) Building
- (60) Ditch or culvert
- (61) Ground
- (62) Fire hydrant
- (63) Curb
- (64) Bridge
- (68) Other fixed object (specify): _____

- (69) Unknown fixed object

Collision with Nonfixed Object

- (71) Motor vehicle not in-transport
- (76) Animal
- (77) Train
- (78) Trailer, disconnected in transport
- (88) Other nonfixed object (specify): _____

- (89) Unknown nonfixed object

- (98) Other event (specify): _____

- (99) Unknown event or object

PRECRASH DATA (Continued)**65. Critical Precrash Event** 1 4*This Vehicle Loss of Control Due To:*

- (01) Blow out or flat tire
- (02) Stalled engine
- (03) Disabling vehicle failure (e.g., wheel fell off) (specify): _____
- (04) Non-disabling vehicle problem (e.g., hood flew up) (specify): _____
- (05) Poor road conditions (puddle, pot hole, ice, etc.) (specify): _____
- (06) Traveling too fast for conditions
- (08) Other cause of control loss (specify): _____
- (09) Unknown cause of control loss

This Vehicle Traveling

- (10) Over the lane line on left side of travel lane
- (11) Over the lane line on right side of travel lane
- (12) Off the edge of the road on the left side
- (13) Off the edge of the road on the right side
- (14) End departure
- (15) Turning left at intersection
- (16) Turning right at intersection
- (17) Crossing over (passing through) intersection
- (19) Unknown travel direction

Other Motor Vehicle In Lane

- (50) Stopped
- (51) Traveling in same direction with lower speed (i.e., lower steady speed or decelerating)
- (52) Traveling in same direction with higher speed
- (53) Traveling in opposite direction
- (54) In crossover
- (55) Backing
- (59) Unknown travel direction of other motor vehicle in lane

Other Motor Vehicle Encroaching Into Lane

- (60) From adjacent lane (same direction)—over left lane line
- (61) From adjacent lane (same direction)—over right lane line
- (62) From opposite direction—over left lane line
- (63) From opposite direction—over right lane line
- (64) From parking lane
- (65) From crossing street, turning into same direction
- (66) From crossing street, across path
- (67) From crossing street, turning into opposite direction
- (68) From crossing street, intended path not known
- (70) From driveway, turning into same direction
- (71) From driveway, across path
- (72) From driveway, turning into opposite direction
- (73) From driveway, intended path not known
- (74) From entrance to limited access highway
- (78) Encroachment by other vehicle—details unknown

Pedestrian or Pedalcyclist, or Other Nonmotorist

- (80) Pedestrian in roadway
- (81) Pedestrian approaching roadway
- (82) Pedestrian - unknown location
- (83) Pedalcyclist or other nonmotorist in roadway (specify): _____
- (84) Pedalcyclist or other nonmotorist approaching roadway (specify): _____
- (85) Pedalcyclist or other nonmotorist—unknown location (specify): _____

Object or Animal

- (87) Animal in roadway
- (88) Animal approaching roadway
- (89) Animal—unknown location
- (90) Object in roadway
- (91) Object approaching roadway
- (92) Object—unknown location

(98) Other critical precrash event (specify): _____

(99) Unknown

For Corrective Actions Attempted see variable GV14
(Attempted Avoidance Manuever)**66. Precrash Stability After Avoidance Maneuver** φ

- (0) No avoidance maneuver
- (1) Tracking
- (2) Skidding longitudinally—rotation less than 30 degrees
- (3) Skidding laterally—clockwise rotation
- (4) Skidding laterally—counterclockwise rotation
- (7) Other vehicle loss-of-control (specify): _____
- (8) No driver present
- (9) Precrash stability unknown

67. Precrash Directional Consequences of Avoidance Maneuver (Corrective Action) φ

- (0) No avoidance maneuver
- (1) Vehicle stayed in travel lane where avoidance maneuver was initiated
- (2) Vehicle stayed on roadway but left travel lane where avoidance maneuver was initiated
- (3) Vehicle stayed on roadway, not known if left travel lane where avoidance maneuver was initiated
- (4) Vehicle departed roadway
- (5) Avoidance maneuver initiated off roadway
- (8) No driver present
- (9) Directional consequences unknown

*** IF THE CDS APPLICABLE VEHICLE WAS NOT INSPECTED (I.E., GV35 = 0), ***
DO NOT COMPLETE THE EXTERIOR AND INTERIOR VEHICLE FORMS.

*** IF GV07 DOES NOT EQUAL 01-49, DO NOT COMPLETE ***
THE EXTERIOR VEHICLE, INTERIOR VEHICLE,
OCCUPANT ASSESSMENT, AND OCCUPANT INJURY FORMS.



EXTERIOR VEHICLE FORM

1. Primary Sampling Unit Number _____	3. Vehicle Number <u>φ 1</u>
2. Case Number - Stratum <u>DST-93-AB-φ03</u>	

VEHICLE IDENTIFICATION

VIN 1 G 1 F P 2 3 F B M L * * * * * Model Year 9 1

Vehicle Make (specify): CHEVROLET Vehicle Model (specify): CAMARO Z28

LOCATOR

Locate the end of the damage with respect to the vehicle longitudinal center line or bumper corner for end impacts or an undamaged axle for side impacts.

Specific Impact No.	Location of Direct Damage	Location of Field L
φ 1	BEGINS RIGHT FRONT BUMPER CORNER	FULL FRONTAL
φ 2	RIGHT FRONT WHEEL	NOT MEASURED - CDC ONLY
φ 3	LEFT FRONT WHEEL	NOT MEASURED - CDC ONLY

CRUSH PROFILE IN CENTIMETERS

NOTES: Identify the plane at which the C-measurements are taken (e.g., at bumper, above bumper, at sill, above sill, etc.) and label adjustments (e.g., free space).

Measure and document on the vehicle diagram the location of maximum crush.

Measure C1 to C6 from driver to passenger side in front or rear impacts and rear to front in side impacts.

Free space value is defined as the distance between the baseline and the original body contour taken at the individual C locations. This may include the following: bumper lead, bumper taper, side protrusion, side taper, etc. Record the value for each C-measurement and maximum crush.

Use as many lines/columns as necessary to describe each damage profile.

Specific Impact Number	Plane of Impact C-Measurements	Direct Damage		Field L	C ₁	C ₂	C ₃	C ₄	C ₅	C ₆	±D
		Width (CDC)	Max Crush								
φ 1	FRONT BUMPER	157	27	157	23	15	12	13	19	27	φ
	- FREE SPACE		13		13	6	2	2	6	13	
	RESULTANT		14		1φ	9	1φ	11	13	14	
			φ 4								
φ 2	RIGHT FRONT WHEEL				NOT MEASURED - CDC ONLY						
φ 3	LEFT FRONT WHEEL				NOT MEASURED - CDC ONLY						
					FUEL LINE						
φ 1	FRONT BUMPER	62.φ	1φ.5	62.φ	9.φ	6.1	4.7	5.2	7.5	1φ.5	φ
	- FREE SPACE		5.φ		5.φ	2.5	.8	.8	2.5	5.φ	
	RESULTANT		5.5		4.φ	3.6	3.9	4.4	5.φ	5.5	
			φ 4								
φ 2	R/F WHEEL				NOT MEASURED - CDC ONLY - ZONE 3						
φ 3	L/F WHEEL				NOT MEASURED - CDC ONLY - ZONE 3						



EXTERIOR VEHICLE FORM

**NATIONAL ACCIDENT SAMPLING SYSTEM
CRASHWORTHINESS DATA SYSTEM**

1. Primary Sampling Unit Number _____ 2. Case Number - Stratum <u>DSI-93-A0-φφ3</u>		3. Vehicle Number <u>φ 1</u> <u>PAGE 1a</u>
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VEHICLE IDENTIFICATION

VIN 1G1FP23F8ML * * * * * Model Year 91
Vehicle Make (specify): CHEVROLET Vehicle Model (specify): CAMARO Z28

LOCATOR

Locate the end of the damage with respect to the vehicle longitudinal center line or bumper corner for end impacts or an undamaged axle for side impacts.

Specific Impact No.	Location of Direct Damage	Location of Field L
04	FRONT UNDERCARRIAGE	NOT MEASURED - CDC ONLY
05	^{BEGINS} RIGHT REAR BUMPER CORNER	NOT MEASURED - SURFACE SCRATCHES

CRUSH PROFILE IN CENTIMETERS

NOTES: Identify the plane at which the C-measurements are taken (e.g., at bumper, above bumper, at sill, above sill, etc.) and label adjustments (e.g., free space).

Measure and document on the vehicle diagram the location of maximum crush.

Measure C1 to C6 from driver to passenger side in front or rear impacts and rear to front in side impacts.

Free space value is defined as the distance between the baseline and the original body contour taken at the individual C locations. This may include the following: bumper lead, bumper taper, side protrusion, side taper, etc. Record the value for each C-measurement and maximum crush.

Use as many lines/columns as necessary to describe each damage profile.

[illegible]

ORIGINAL SPECIFICATIONS WORK SHEET

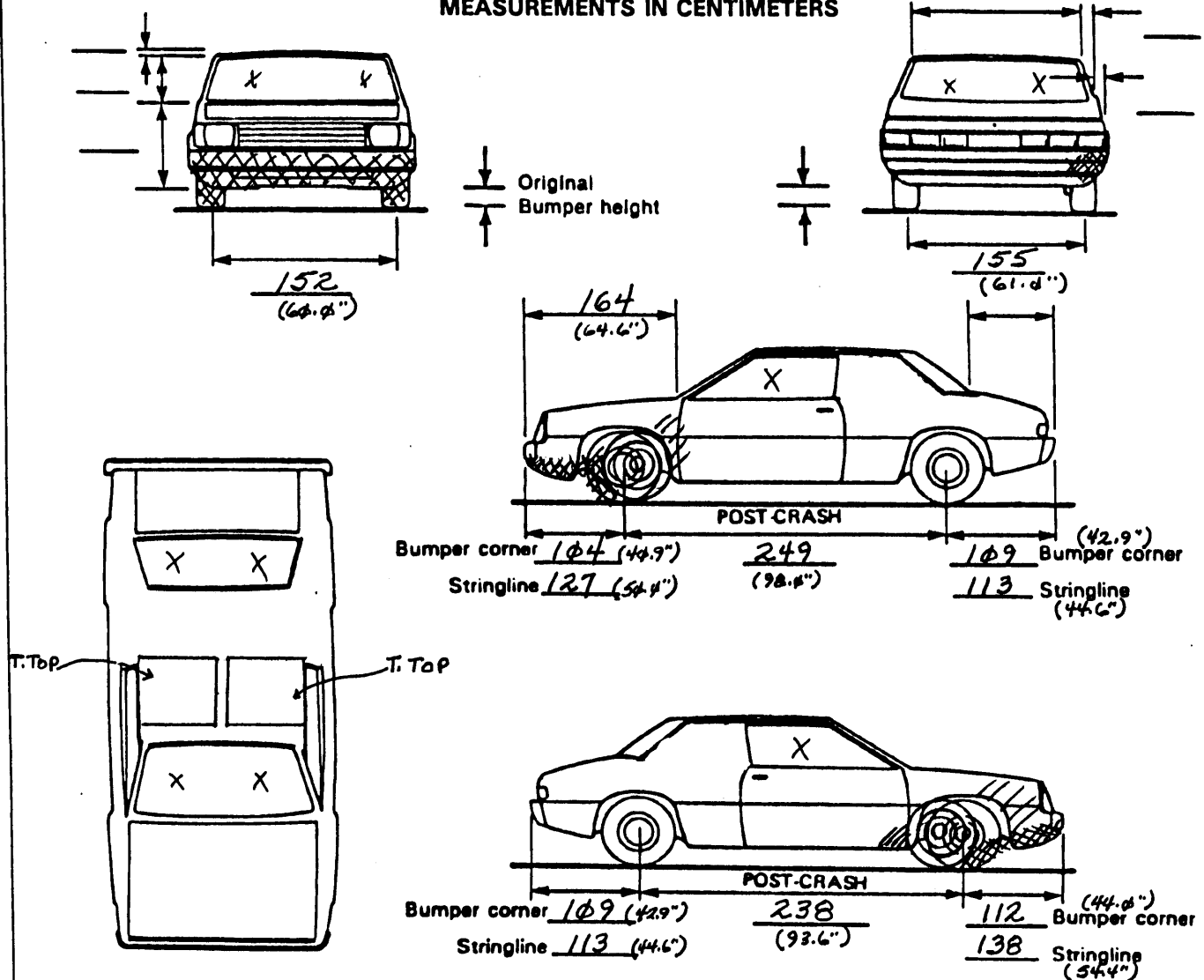
Wheelbase	<u>1</u> <u>0</u> <u>1</u> <u>0</u> inches	x 2.54 =	<u>2</u> <u>5</u> <u>7</u> cm
Overall Length	<u>1</u> <u>9</u> <u>2</u> <u>6</u> inches	x 2.54 =	<u>4</u> <u>8</u> <u>9</u> cm
Maximum Width	<u>0</u> <u>7</u> <u>2</u> <u>4</u> inches	x 2.54 =	<u>1</u> <u>8</u> <u>4</u> cm
Curb Weight	<u>0</u> <u>3</u> <u>1</u> <u>0</u> <u>3</u> pounds	x .4536 =	<u>1</u> <u>4</u> <u>0</u> <u>8</u> kg
Average Track	<u>0</u> <u>6</u> <u>0</u> <u>5</u> inches	x 2.54 =	<u>1</u> <u>5</u> <u>4</u> cm
Front Overhang	<u>0</u> <u>4</u> <u>7</u> <u>0</u> inches	x 2.54 =	<u>1</u> <u>1</u> <u>9</u> cm
Rear Overhang	<u>0</u> <u>4</u> <u>4</u> <u>6</u> inches	x 2.54 =	<u>1</u> <u>1</u> <u>3</u> cm
Undeformed End Width	<u>0</u> <u>6</u> <u>2</u> <u>0</u> inches	x 2.54 =	<u>1</u> <u>5</u> <u>7</u> cm
Engine Size: cyl./displ.	<u> </u> <u> </u> <u> </u> <u> </u> cc	x .001 =	<u>5</u> <u>0</u> L
	<u> </u> <u> </u> <u> </u> CID	x .0164 =	<u> </u> <u> </u> L

VEHICLE DAMAGE SKETCH

TIRE—WHEEL DAMAGE a. Rotation physically restricted b. Tire deflated RF <u>1</u> <i>FIRE DAMAGE</i> RF <u>1</u> LF <u>1</u> <i>FIRE DAMAGE</i> LF <u>1</u> RR <u>2</u> RR <u>2</u> LR <u>2</u> <i>FIRE DAMAGE</i> LR <u>1</u> (1) Yes (2) No (8) NA (9) Unk.		ORIGINAL SPECIFICATIONS Wheelbase <u>257</u> cm Overall Length <u>489</u> cm Maximum Width <u>184</u> cm Curb Weight <u>1408</u> kg Average Track <u>154</u> cm Front Overhang <u>119</u> cm Rear Overhang <u>113</u> cm Undeformed End Width <u>157</u> cm Engine Size: cyl./displ. <u>V8/5.4</u> L		WHEEL STEER ANGLES (For locked front wheels or displaced rear axles only) RF \oplus <u>0</u> <u>5</u> ° LF \oplus <u>1</u> <u>5</u> ° RR \pm _____ ° LR \pm _____ ° Within \pm 5 degrees
TYPE OF TRANSMISSION <input type="checkbox"/> Manual <input checked="" type="checkbox"/> Automatic		DRIVE WHEELS <input type="checkbox"/> FWD <input checked="" type="checkbox"/> RWD <input type="checkbox"/> 4WD		
		Approximate Cargo Weight <u>0</u> kg		

GAUGE STANDS A.O.L.

MEASUREMENTS IN CENTIMETERS



NOTES: Sketch new perimeter and cross hatch direct damage and single hatch induced damage on all views. Annotate observations which might be useful in reconstructing the accident (e.g., grass in tire bead, direction of striations, scuff on sidewalls, etc.). If pulling trailer, sketch type of trailer and damage received on the back of this page.

Annotate any damage caused by extrication such as component removal by torching, prying, or hydraulic shears.

CODES FOR OBJECT CONTACTED

(99) Unknown event or object

[illegible]

COLLISION DEFORMATION CLASSIFICATION

HIGHEST DELTA "V"

Accident Event Sequence Number	Object Contacted	(1) (2) Direction of Force	(3) Deformation Location	(4) Longitudinal or Lateral Location	(5) Vertical or Lateral Location	(6) Type of Damage Distribution	(7) Deformation Extent
4. <u>φ 2</u>	5. <u>6 1</u>	6. <u>1 2</u>	7. <u>F</u>	8. <u>R</u>	9. <u>W</u>	10. <u>N</u>	11. <u>φ 3</u>

Second Highest Delta "V"

12. <u>φ 1</u>	13. <u>4 4</u>	14. <u>1 2</u>	15. <u>F</u>	16. <u>D</u>	17. <u>L</u>	18. <u>W</u>	19. <u>φ 1</u>
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CRUSH PROFILE IN CENTIMETERS

The crush profile for the damage described in the CDC(s) above should be documented in the appropriate space below. (ALL MEASUREMENTS ARE IN CENTIMETERS.)

HIGHEST DELTA "V"

20. <u>L</u>	21. <u>C₁</u>	<u>C₂</u>	<u>C₃</u>	<u>C₄</u>	<u>C₅</u>	<u>C₆</u>	22. <u>±D</u>
<u>NOT MEASURED - CDC ONLY - ZONE 3</u>							<u>+</u>
							<u>-</u>

Second Highest Delta "V"

23. <u>L</u>	24. <u>C₁</u>	<u>C₂</u>	<u>C₃</u>	<u>C₄</u>	<u>C₅</u>	<u>C₆</u>	25. <u>±D</u>
<u>157</u> (62 in.)	<u>φ 1 φ</u> (4 in.)	<u>φ φ 9</u> (4 in.)	<u>φ 1 φ</u> (4 in.)	<u>φ 1 1</u> (4 in.)	<u>φ 1 3</u> (5 in.)	<u>φ 1 4</u> (6 in.)	<u>+</u> <u>φ φ φ</u>

26. Are CDCs Documented but Not Coded on The Automated File?
(0) No
(1) Yes

1

27. Researcher's Assessment of Vehicle Disposition
(0) Not towed due to vehicle damage
(1) Towed due to vehicle damage
(9) Unknown

1

28. Original Wheelbase 257
Code to the nearest centimeter
(999) Unknown

1 φ 1 . φ inches X 2.54 = 257 centimeters

29. Is This A Multi-Stage Manufactured Vehicle
And/Or A Certified Altered Vehicle?

0

- (0) No post manufacturer modifications
(1) Yes - post manufacturer modifications
(specify): _____

(Include photograph of CERTIFICATION
PLACARD in case report)

- (9) Unknown if vehicle is modified

30. Fire Occurrence

2

- (0) No fire

Yes, fire occurred

- (1) Minor
(2) Major
(9) Unknown

31. Origin of Fire

4

- (0) No fire
(1) Vehicle exterior (front, side, back, top)
(2) Exhaust system
(3) Fuel tank (and other fuel retention
system parts)
(4) Engine compartment
(5) Cargo/trunk compartment
(6) Instrument panel
(7) Passenger compartment area
(8) Other location (specify): _____

- (9) Unknown

32. Type of Fuel Tank

1

- (0) No fuel tank (electrical vehicle)
(1) Metallic
(2) Non-metallic
(9) Unknown

*** STOP: IF THE CDS APPLICABLE VEHICLE WAS NOT TOWED AND WAS NOT AN AOPS ***
(I.E., GV09 = 0 OR 9 AND GV36 = 0), DO NOT COMPLETE THE INTERIOR VEHICLE FORM.



INTERIOR VEHICLE FORM

1. Primary Sampling Unit Number _____

2. Case Number - Stratum DSI-93-AB-φφ3

3. Vehicle Number φ 1

INTEGRITY

4. Passenger Compartment Integrity φ φ

(00) No integrity loss

Yes, Integrity Was Lost Through

- (01) Windshield
- (02) Door (side)
- (03) Door/hatch (back door)
- (04) Roof
- (05) Roof glass
- (06) Side window
- (07) Rear window (backlight)
- (08) Roof and roof glass
- (09) Windshield and door (side)
- (10) Windshield and roof
- (11) Side and rear window (side window and backlight)
- (12) Windshield and side window
- (13) Door and side window
- (98) Other combination of above (specify):

(99) Unknown

Door, Tailgate or Hatch Opening

5. LF 1 6. RF 1 7. LR φ 8. RR φ 9. TG/H 1

- (0) No door/gate/hatch
- (1) Door/gate/hatch remained closed and operational
- (2) Door/gate/hatch came open during collision
- (3) Door/gate/hatch jammed shut
- (8) Other (specify):

(9) Unknown

Damage/Failure Associated with Door, Tailgate or Hatch Opening in Collision. If IV05-IV09 ≠ 2, Then code 0

10. LF φ 11. RF φ 12. LR φ 13. RR φ 14. TG/H φ

(0) No door/gate/hatch or door not opened

Door, Tailgate or Hatch Came Open During Collision

- (1) Door operational (no damage)
- (2) Latch/striker failure due to damage
- (3) Hinge failure due to damage
- (4) Door structure failure due to damage
- (5) Door support (i.e., pillar, sill, roof side rail, etc.) failure due to damage
- (6) Latch/striker and hinge failure due to damage
- (8) Other failure (specify):

(9) Unknown

GLAZING

Glazing Damage from Impact Forces

15. WS 9 16. LF 9 17. RF 9 18. LR 8 19. RR 8

20. BL 9 21. Roof 9 22. Other 8

- (0) No glazing damage from impact forces
- (2) Glazing in place and cracked from impact forces
- (3) Glazing in place and holed from impact forces
- (4) Glazing out-of-place (cracked or not) and not holed from impact forces
- (5) Glazing out-of-place and holed from impact forces
- (6) Glazing disintegrated from impact forces
- (7) Glazing removed prior to accident
- (8) No glazing
- (9) Unknown if damaged

Glazing Damage from Occupant Contact

23. WS 9 24. LF 9 25. RF 9 26. LR φ 27. RR φ

28. BL 9 29. Roof 9 30. Other φ

- (0) No occupant contact to glazing or no glazing
- (1) Glazing contacted by occupant but no glazing damage
- (2) Glazing in place and cracked by occupant contact
- (3) Glazing in place and holed by occupant contact
- (4) Glazing out-of-place (cracked or not) by occupant contact and not holed by occupant contact
- (5) Glazing out-of-place by occupant contact and holed by occupant contact
- (6) Glazing disintegrated by occupant contact
- (9) Unknown if contacted by occupant

If No Glazing Damage *And* No Occupant Contact or No Glazing, Then Code IV31 Through IV46 As 0

Type of Window/Windshield Glazing

31. WS 9 32. LF 9 33. RF 9 34. LR φ 35. RR φ

36. BL 9 37. Roof 9 38. Other φ

- (0) No glazing contact and no damage, or no glazing
- (1) AS-1 — Laminated
- (2) AS-2 — Tempered
- (3) AS-3 — Tempered-tinted
- (4) AS-14 — Glass/Plastic
- (8) Other (specify):

(9) Unknown

Window Precrash Glazing Status

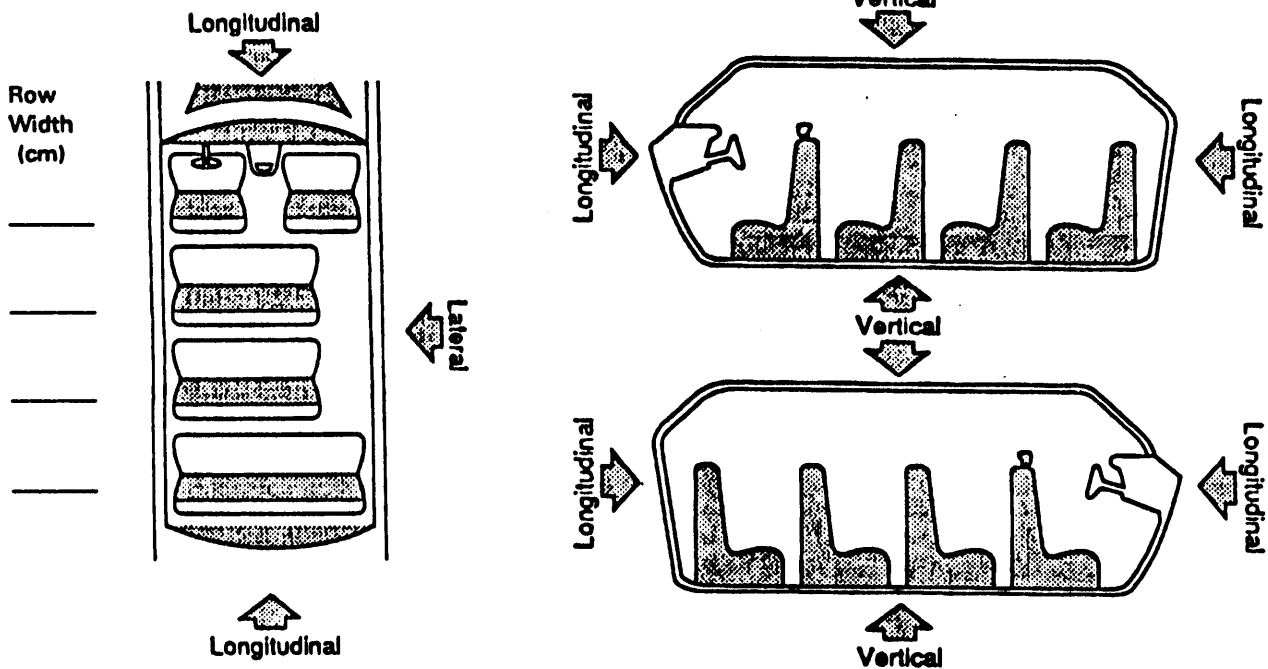
39. WS 9 40. LF 9 41. RF 9 42. LR φ 43. RR φ

44. BL 9 45. Roof 9 46. Other φ

- (0) No glazing contact and no damage, or no glazing
- (1) Fixed
- (2) Closed
- (3) Partially opened
- (4) Fully opened
- (9) Unknown

INTRUSION WORKSHEET

Note: Sketch intruded areas



LOCATION OF INTRUSION	INTRUDED COMPONENT	(All Measurements Are In Centimeters)			DOMINANT CRUSH DIRECTION
		COMPARISON VALUE	INTRUDED VALUE	INTRUSION	
		-		=	
		-		=	
		NONE APPARENT - FIRE BUCKLING			
		-		=	
		-		=	
		-		=	
		-		=	
		-		=	
		-		=	
		-		=	
		-		=	
		-		=	
		-		=	
		-		=	
		-		=	
		-		=	

Document no more than the 15 most severe intrusions

OCCUPANT AREA INTRUSION

Note: If no intrusions, leave variables IV47-IV86 blank.

INTRUDING COMPONENT*Interior Components*

- (01) Steering assembly
- (02) Instrument panel left
- (03) Instrument panel center
- (04) Instrument panel right
- (05) Toe pan
- (06) A (A1/A2)-pillar
- (07) B-pillar
- (08) C-pillar
- (09) D-pillar
- (10) Door panel (side)
- (12) Roof (or convertible top)
- (13) Roof side rail
- (14) Windshield
- (15) Windshield header
- (16) Window frame
- (17) Floor pan (includes sill)
- (18) Backlight header
- (19) Front seat back
- (20) Second seat back
- (21) Third seat back
- (22) Fourth seat back
- (23) Fifth seat back
- (24) Seat cushion
- (25) Back door/panel (e.g., tailgate)
- (26) Other interior component (specify):

- (27) Side panel - forward of the A (A2)-pillar
- (28) Side panel - rear of the A (A2)-pillar

Exterior Components

- (30) Hood
- (31) Outside surface of this vehicle (specify):
- (32) Other exterior object in the environment (specify):
- (33) Unknown exterior object
- (97) Catastrophic
- (98) Intrusion of unlisted component(s) (specify):
- (99) Unknown

LOCATION OF INTRUSION

Front Seat
 (11) Left
 (12) Middle
 (13) Right

Second Seat
 (21) Left
 (22) Middle
 (23) Right

Third Seat
 (31) Left
 (32) Middle
 (33) Right

Fourth Seat
 (41) Left
 (42) Middle
 (43) Right

(97) Catastrophic
 (98) Other enclosed area (specify)

(99) Unknown

MAGNITUDE OF INTRUSION

- (1) ≥ 3 centimeters but < 8 centimeters
- (2) ≥ 8 centimeters but < 15 centimeters
- (3) ≥ 15 centimeters but < 30 centimeters
- (4) ≥ 30 centimeters but < 46 centimeters
- (5) ≥ 46 centimeters but < 61 centimeters
- (6) ≥ 61 centimeters
- (7) Catastrophic
- (9) Unknown

DOMINANT CRUSH DIRECTION

- (1) Vertical
- (2) Longitudinal
- (3) Lateral
- (7) Catastrophic
- (9) Unknown

1st 47.____ 48.____ 49.____ 50.____

2nd 51.____ 52.____ 53.____ 54.____

3rd 55.____ 56.____ 57.____ 58.____

4th 59.____ 60.____ 61.____ 62.____

5th 63.____ 64.____ 65.____ 66.____

6th 67.____ 68.____ 69.____ 70.____

7th 71.____ 72.____ 73.____ 74.____

8th 75.____ 76.____ 77.____ 78.____

9th 79.____ 80.____ 81.____ 82.____

10th 83.____ 84.____ 85.____ 86.____

None Apparent
Free Blanking

STEERING RIM/SPOKE DEFORMATION

(All Measurements Are In Centimeters)

COMPARISON VALUE

-

DAMAGE VALUE

=

DEFORMATION

-

=

-

=

-

=

-

=

NONE APPARENT- FIRE DAMAGE

STEERING COLUMN87. Steering Column Type 2

- (1) Fixed column
 (2) Tilt column
 (3) Telescoping column
 (4) Tilt and telescoping column
 (8) Other column type (specify):
 (9) Unknown

88. Blank X X

(This variable is left blank so that numbering consistency can be maintained with the 1988-93 CDS.

89. Blank X X X

(This variable is left blank so that numbering consistency can be maintained with the 1988-93 CDS.

90. Blank X X X

(This variable is left blank so that numbering consistency can be maintained with the 1988-93 CDS.

91. Blank X X X

(This variable is left blank so that numbering consistency can be maintained with the 1988-93 CDS.

92. Steering Rim/Spoke Deformation φ φ

- Code actual measured deformation to the nearest centimeter
 (00) No steering rim deformation
 (01-14) Actual measured value in centimeters
 (15) 15 centimeters or more
 (98) Observed deformation cannot be measured
 (99) Unknown

93. Location of Steering Rim/Spoke Deformation φ φ

(00) No steering rim deformation

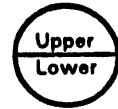
Quarter Sections

- (01) Section A
 (02) Section B
 (03) Section C
 (04) Section D



Half Sections

- (05) Upper half of rim/spoke
 (06) Lower half of rim/spoke
 (07) Left half of rim/spoke
 (08) Right half of rim/spoke



- (09) Complete steering wheel collapse
 (10) Undetermined location
 (99) Unknown

INSTRUMENT PANEL94. Odometer Reading φ 12,000

_____ kilometers—Code to the nearest 1,000 kilometers

- (000) No odometer
 (001) Less than 1,500 kilometers
 (500) 499,500 kilometers or more
 (999) Unknown

7,500 miles X 1.6093 = 12,070 kilometers

Source: FAMILY APPROXIMATION - ODOMETER DESTROYED IN FIRE

95. Instrument Panel Damage from Occupant Contact? 9

- (0) No
 (1) Yes
 (9) Unknown

96. Knee Bolsters Deformed from Occupant Contact? 9

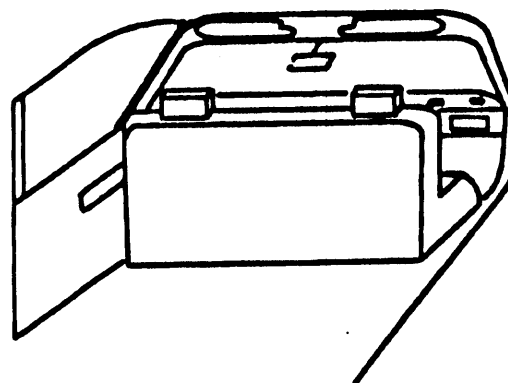
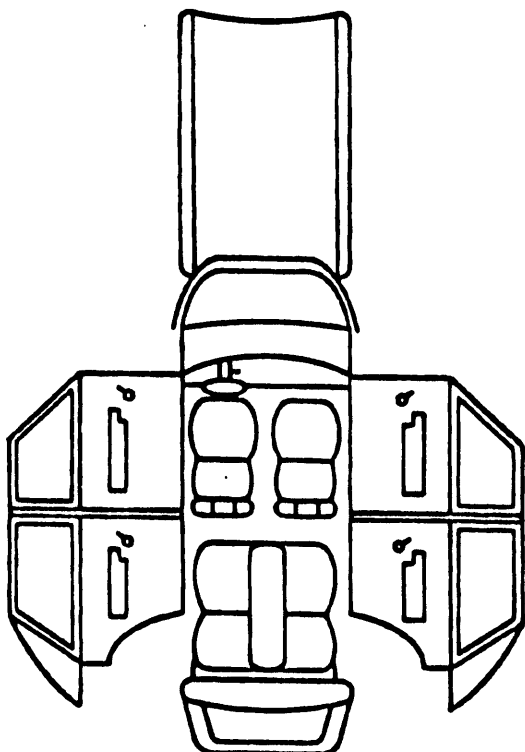
- (0) No
 (1) Yes
 (8) Not present
 (9) Unknown

97. Did Glove Compartment Door Open During Collision(s)? 9

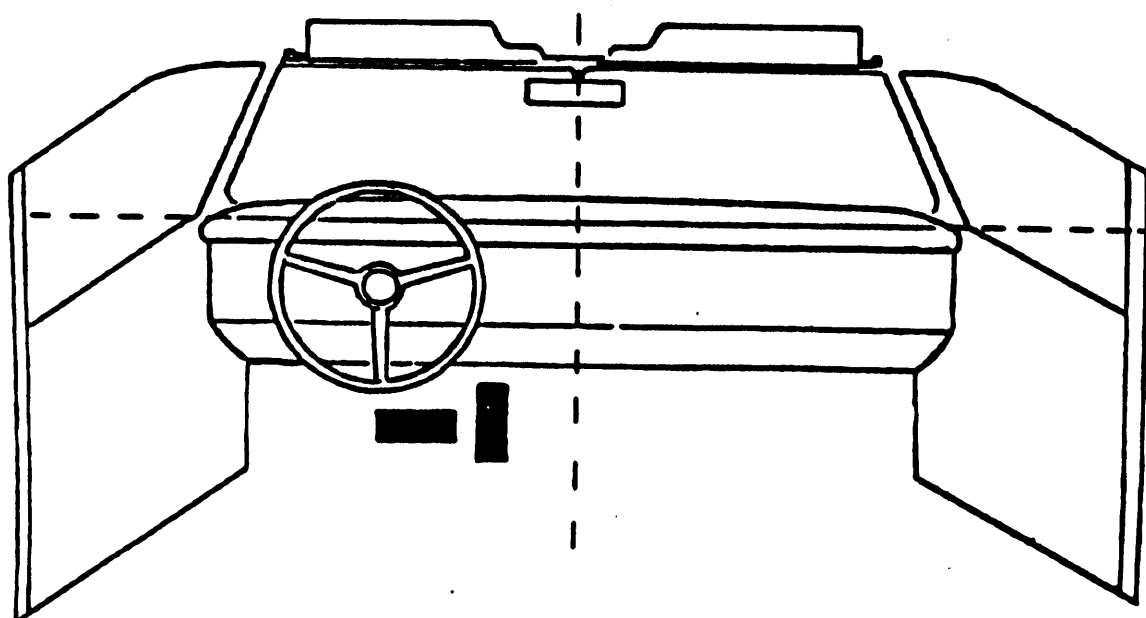
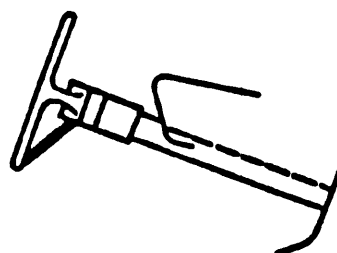
- (0) No
 (1) Yes
 (8) Not present
 (9) Unknown

VEHICLE INTERIOR SKETCHES

Note area of ejection/entrapment



INTERIOR DESTROYED BY FIRE



Sketch windshield contact(s) and the damaged area(s) on the instrument panel outline (e.g., radio, glove compartment, damage to instrument panel structure).

Cross hatch contact points, draw spider webs or use other annotation as may be appropriate.

Annotate the contacted area with a letter (begin with A) and list on the Points of Occupant Contact page.

POINTS OF OCCUPANT CONTACT

Contact	Interior Component Contacted	Occupant No. If Known	Body Region If Known	Supporting Physical Evidence	Confidence Level of Contact Point
A					
B		INTERIOR DESTROYED BY FIRE			
C					
D					
E					
F					
G					
H					
I					
J					
K					
L					
M					
N					

CODES FOR INTERIOR COMPONENTS

FRONT

- (01) Windshield
- (02) Mirror
- (03) Sunvisor
- (04) Steering wheel rim
- (05) Steering wheel hub/spoke
- (06) Steering wheel (combination of codes 04 and 05)
- (07) Steering column, transmission selector lever, other attachment
- (08) Add on equipment (e.g., CB, tape deck, air conditioner)
- (09) Left instrument panel and below
- (10) Center instrument panel and below
- (11) Right instrument panel and below
- (12) Glove compartment door
- (13) Knee bolster
- (14) Windshield including one or more of the following: front header, A (A1/A2)-pillar, instrument panel, mirror, or steering assembly (driver side only)
- (15) Windshield including one or more of the following: front header, A (A1/A2)-pillar, instrument panel, or mirror (passenger side only)
- (16) Driver side air bag compartment cover
- (17) Passenger side air bag compartment cover
- (18) Windshield reinforced by exterior object (specify): _____
- (19) Other front object (specify): _____

LEFT SIDE

- (20) Left side interior surface, excluding hardware or armrests
- (21) Left side hardware or armrest
- (22) Left A (A1/A2)-pillar

- (23) Left B-pillar

- (24) Other left pillar (specify): _____

- (25) Left side window glass or frame
- (26) Left side window glass including one or more of the following: frame, window sill, A (A1/A2)-pillar, B-pillar, or roof side rail.
- (27) Other left side object (specify): _____

- (28) Left side window sill

RIGHT SIDE

- (30) Right side interior surface, excluding hardware or armrests
- (31) Right side hardware or armrest
- (32) Right A (A1/A2)-pillar
- (33) Right B-pillar
- (34) Other right pillar (specify): _____

- (35) Right side window glass or frame
- (36) Right side window glass including one or more of the following: frame, window sill, A (A1/A2)-pillar, B pillar, or roof side rail.
- (37) Other right side object (specify): _____

- (38) Right side window sill

INTERIOR

- (40) Seat, back support
- (41) Belt restraint webbing/buckle
- (42) Belt restraint B-pillar attachment point
- (43) Other restraint system component (specify): _____
- (44) Head restraint system
- (45) Air bag (use codes "16" and "17" for injuries sustained from air bag compartment covers)

- (46) Other occupants (specify): _____

- (47) Interior loose objects

- (48) Child safety seat (specify): _____

- (49) Other interior object (specify): _____

ROOF

- (50) Front header
- (51) Rear header
- (52) Roof left side rail
- (53) Roof right side rail
- (54) Roof or convertible top

FLOOR

- (56) Floor (including toe pan)
- (57) Floor or console mounted transmission lever, including console
- (58) Parking brake handle
- (59) Foot controls including parking brake

REAR

- (60) Backlight (rear window)
- (61) Backlight storage rack, door, etc.
- (62) Other rear object (specify): _____

CONFIDENCE LEVEL OF CONTACT POINT

- (1) Certain
- (2) Probable
- (3) Possible
- (9) Unknown

AUTOMATIC RESTRAINTS

NOTES: Encode the data for each applicable front seat position. The attribute for the variables may be found below. Restraint systems should be assessed during the vehicle inspection then coded on the Occupant Assessment Form.

AIR BAGS

		Left	Right
F I R S T	Availability/Function	/	φ
	Deployment	/	φ
	Failure	/	φ

Air Bag System Availability/Function

- (0) Not equipped/not available
- (1) Air bag
- Non-functional*
- (2) Air bag disconnected (specify): _____
- (3) Air bag not reinstalled
- (9) Unknown

Air Bag System Deployment

- (0) Not equipped/not available
- (1) Air bag deployed during accident (as a result of impact)
- (2) Air bag deployed inadvertently just prior to accident
- (3) Air bag deployed, accident sequence undetermined
- (4) Nondeployed
- (5) Unknown if deployed
- (6) Air bag deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)
- (9) Unknown

Did Air Bag System Fail?

- (0) Not equipped/not available
- (1) No
- (2) Yes (specify): _____
- (9) Unknown

AUTOMATIC BELTS

		Left	Right
F I R S T	Availability/Function	φ	φ
	Use	φ	φ
	Type	φ	φ
	Proper Use	φ	φ
	Failure Modes	φ	φ

Automatic (Passive) Belt System Availability/Function

- (0) Not equipped/not available
- (1) 2 point automatic belts
- (2) 3 point automatic belts
- (3) Automatic belts - type unknown

Non-functional

- (4) Automatic belts destroyed or rendered inoperative
- (9) Unknown

Automatic (Passive) Belt System Use

- (0) Not equipped/not available/destroyed or rendered inoperative
- (1) Automatic belt in use
- (2) Automatic belt not in use (manually disconnected, motorized track inoperative)
- (3) Automatic belt use unknown
- (9) Unknown

Automatic (Passive) Belt System Type

- (0) Not equipped/not available
- (1) Non-motorized system
- (2) Motorized system
- (9) Unknown

Proper Use of Automatic (Passive) Belt System

- (0) Not equipped/not available/not used
- (1) Automatic belt used properly
- (2) Automatic belt used properly with child safety seat

Automatic Belt Used Improperly

- (3) Automatic shoulder belt worn under arm
- (4) Automatic shoulder belt worn behind back
- (5) Automatic belt worn around more than one person
- (6) Lap portion of automatic belt worn on abdomen
- (7) Automatic lap and shoulder belt or automatic shoulder belt used improperly with child safety seat (specify): _____
- (8) Other improper use of automatic belt system (specify): _____
- (9) Unknown

Automatic (Passive) Belt Failure Modes During Accident

- (0) Not equipped/not available/not in use
- (1) No automatic belt failure(s)
- (2) Torn webbing (stretched webbing not included)
- (3) Broken buckle or latchplate
- (4) Upper anchorage separated
- (5) Other anchorage separated (specify): _____
- (6) Broken retractor
- (7) Combination of above (specify): _____
- (8) Other automatic belt failure (specify): _____
- (9) Unknown

MANUAL RESTRAINTS

NOTES: Encode the applicable data for each seat position in the vehicle. The attribute for the variable may be found below. Restraint systems should be assessed during the vehicle inspection then coded on the Occupant Assessment Form.

If a Child safety seat is present, encode the data on the back of this page.

If the vehicle has automatic restraints available, encode the appropriate data on the back of the previous page.

		Left	Center	Right
FIRST	Availability	4	φ	4
	Use	φ φ	φ φ	φ φ
	Failure Modes	φ	φ	φ
SECOND	Availability	4	φ	4
	Use	φ φ	φ φ	φ φ
	Failure Modes	φ	φ	φ
THIRD	Availability			
	Use			
	Failure Modes			
OTHER	Availability			
	Use			
	Failure Modes			

Manual (Active) Belt System Availability

- (0) None available
- (1) Belt removed/destroyed
- (2) Shoulder belt
- (3) Lap belt
- (4) Lap and shoulder belt
- (5) Belt available - type unknown

Integral Belt Partially Destroyed

- (6) Shoulder belt (lap belt destroyed/removed)
- (7) Lap belt (shoulder belt destroyed/removed)

(8) Other belt (specify): _____

(9) Unknown

Manual (Active) Belt System Use

- (00) None used, not available, or belt removed/destroyed
- (01) Inoperable (specify): _____
- (02) Shoulder belt
- (03) Lap belt
- (04) Lap and shoulder belt
- (05) Belt used - type unknown

(08) Other belt used (specify): _____

- (12) Shoulder belt used with child safety seat
- (13) Lap belt used with child safety seat
- (14) Lap and shoulder belt used with child safety seat
- (15) Belt used with child safety seat - type unknown
- (18) Other belt used with child safety seat (specify): _____
- (99) Unknown if belt used

Manual (Active) Belt Failure Modes During Accident

- (0) No manual belt used or not available
- (1) No manual belt failure(s)
- (2) Torn webbing (stretched webbing not included)
- (3) Broken buckle or latchplate
- (4) Upper anchorage separated
- (5) Other anchorage separated (specify): _____
- (6) Broken retractor
- (7) Combination of above (specify): _____
- (8) Other manual belt failure (specify): _____
- (9) Unknown

CHILD SAFETY SEAT FIELD ASSESSMENT

When a child safety seat is present enter the occupant's number in the first row and complete the column below the occupant's number using the codes listed below. Complete a column for each child safety seat present.

Occupant Number						
1. Type of Child Safety Seat						
2. Child Safety Seat Orientation						
3. Child Safety Seat Harness Usage			0			
4. Child Safety Seat Shield Usage						
5. Child Safety Seat Tether Usage						
6. Child Safety Seat Make/Model	Specify Below for Each Child Safety Seat					

1. Type of Child Safety Seat

- (0) No child safety seat
- (1) Infant seat
- (2) Toddler seat
- (3) Convertible seat
- (4) Booster seat
- (7) Other type child safety seat (specify): _____
- (8) Unknown child safety seat type
- (9) Unknown if child safety seat used

2. Child Safety Seat Orientation

- (00) No child safety seat
- Designed for Rear Facing for This Age/Weight
- (01) Rear facing
- (02) Forward facing
- (08) Other orientation (specify): _____
- (09) Unknown orientation
- Designed for Forward Facing for This Age/Weight
- (11) Rear facing
- (12) Forward facing
- (18) Other orientation (specify): _____
- (19) Unknown orientation
- Unknown Design or Orientation For This Age/Weight, or Unknown Age/Weight
- (21) Rear facing
- (22) Forward facing
- (28) Other orientation (specify): _____
- (29) Unknown orientation
- (99) Unknown if child safety seat used

3. Child Safety Seat Harness Usage

4. Child Safety Seat Shield Usage

- ### 5. Child Safety Seat Tether Usage
- Note: Options Below Are Used for Variables 3-5.
- (00) No child safety seat

Not Designed with Harness/Shield/Tether

- (01) After market harness/shield/tether added, not used
- (02) After market harness/shield/tether used
- (03) Child safety seat used, but no after market harness/shield/tether added
- (09) Unknown if harness/shield/tether added or used

Designed With Harness/Shield/Tether

- (11) Harness/shield/tether not used
- (12) Harness/shield/tether used
- (19) Unknown if harness/shield/tether used

Unknown If Designed With Harness/Shield/Tether

- (21) Harness/shield/tether not used
- (22) Harness/shield/tether used
- (29) Unknown if harness/shield/tether used

(99) Unknown if child safety seat used

- ### 6. Child Safety Seat Make/Model
- (Specify make/model and occupant number)

HEAD RESTRAINTS/SEAT EVALUATION

NOTES: Encode the applicable data for each seat position in the vehicle. The attribute for these variables may be found at the bottom of the page. Head restraint type/damage and seat type/performance should be assessed during the vehicle inspection then coded on the Occupant Assessment Form.

		Left	Center	Right
FIRST	Head Restraint Type/Damage	3	φ	3
	Seat Type	φ2	φ φ	φ2
	Seat Performance	8	φ	8
	Seat Orientation	1	φ	1
SECOND	Head Restraint Type/Damage	9	φ	9
	Seat Type	φ2	φ φ	φ2
	Seat Performance	8	φ	8
	Seat Orientation	1	φ	1
THIRD	Head Restraint Type/Damage			
	Seat Type			
	Seat Performance			
	Seat Orientation			
OTHER	Head Restraint Type/Damage			
	Seat Type			
	Seat Performance			
	Seat Orientation			

Head Restraint Type/Damage by Occupant at This Occupant Position

- (0) No head restraints
- (1) Integral — no damage
- (2) Integral — damaged during accident
- (3) Adjustable — no damage
- (4) Adjustable — damaged during accident
- (5) Add-on — no damage
- (6) Add-on — damaged during accident
- (8) Other Specify: _____

(9) Unknown

Seat Type (this Occupant Position)

- (00) Occupant not seated or no seat
- (01) Bucket
- (02) Bucket with folding back
- (03) Bench
- (04) Bench with separate back cushions
- (05) Bench with folding back(s)
- (06) Split bench with separate back cushions
- (07) Split bench with folding back(s)
- (08) Pedestal (i.e., column supported)
- (09) Other seat type (specify): _____

(10) Box mounted seat (i.e., van type)

(99) Unknown

Seat Performance (this Occupant Position)

- (0) Occupant not seated or no seat
- (1) No seat performance failure(s)
- (2) Seat adjusters failed
- (3) Seat back folding locks or "seat back" failed specify: _____
- (4) Seat tracks/anchors failed
- (5) Deformed by impact of occupant
- (6) Deformed by passenger compartment intrusion (specify): _____

(7) Combination of above (specify): _____

(8) Other (specify): _____

(9) Unknown NO STRUCTURAL DAMAGE - COVERS, ETC. DESTROYED BY FIRE**Seat Orientation (this Occupant Position)**

- (0) Occupant not seated or no seat
- (1) Forward facing seat
- (2) Rear facing seat
- (3) Side facing seat (inward)
- (4) Side facing seat (outward)
- (8) Other (specify): _____

(9) Unknown

DESCRIBE ANY INDICATION OF ABNORMAL OCCUPANT POSTURE (I.E., UNUSUAL OCCUPANT CONTACT PATTERN)

EJECTION/ENTRAPMENT DATA

Complete the following if the researcher has any indication that an occupant was either ejected from or entrapped in the vehicle. Code the appropriate data on the Occupant Assessment Form.

EJECTION No [☒] Yes []

Describe indications of ejection and body parts involved in partial ejection(s):

Occupant Number						
Ejection						
(Note on Vehicle Interior Sketch) Ejection Area						
Ejection Medium						
Medium Status						

Ejection

- (1) Complete ejection
(1) Partial ejection
(3) Ejection, Unknown degree
(9) Unknown

Ejection Area

- (1) Windshield
(2) Left front
(3) Right front
(4) Left rear
(5) Right rear
(6) Rear

(7) Roof

- (8) Other area (e.g., back of pickup, etc.) (specify):

(9) Unknown**Ejection Medium**

- (1) Door/hatch/tailgate
(2) Nonfixed roof structure
(3) Fixed glazing
(4) Nonfixed glazing (specify):

(5) Integral structure

- (8) Other medium (specify):

(9) Unknown**Medium Status (Immediately Prior to Impact)**

- (1) Open
(2) Closed
(3) Integral structure
(9) Unknown

ENTRAPMENT No [☒] Yes []

Describe entrapment mechanism: _____

Component(s): _____

(Note in vehicle interior diagram)



OCCUPANT ASSESSMENT FORM

1. Primary Sampling Unit Number

2. Case Number - Stratum DSI-93-AB-003

3. Vehicle Number 01

4. Occupant Number 01

OCCUPANT'S CHARACTERISTICS

5. Occupant's Age 59

Code actual age at time of accident.

(00) Less than one year old (specify by month):

(97) 97 years and older

(99) Unknown

6. Occupant's Sex 1

(1) Male

(2) Female

(9) Unknown

7. Occupant's Height 180

Code actual height to the nearest centimeter.

(999) Unknown

71 inches X 2.54 = 180 centimeters

8. Occupant's Weight 178

Code actual weight to the nearest kilogram.

(999) Unknown

171 pounds X .4536 = 77.5 kilograms

9. Occupant's Role 1

(1) Driver

(2) Passenger

(9) Unknown

OCCUPANT'S SEATING

10. Occupant's Seat Position 11

Front Seat

(11) Left side

(12) Middle

(13) Right side

(14) Other (specify):

(15) On or in the lap of another occupant

Second Seat

(21) Left side

(22) Middle

(23) Right side

(24) Other (specify):

(25) On or in the lap of another occupant

Third Seat

(31) Left side

(32) Middle

(33) Right side

(34) Other (specify):

(35) On or in the lap of another occupant

Fourth Seat

(41) Left side

(42) Middle

(43) Right side

(44) Other (specify):

(45) On or in the lap of another occupant

(97) In or on unenclosed area

(98) Other seat (specify):

(99) Unknown

11. Occupant's Posture 9

(0) Normal posture

Abnormal posture

(1) Kneeling or standing on seat

(2) Lying on or across seat

(3) Kneeling, standing or sitting in front of seat

(4) Sitting sideways or turned to talk with another occupant or to look out a rear window

(5) Sitting on a console

(6) Lying back in a reclined seat position

(7) Bracing with feet or hands on a surface in front of seat

(8) Other abnormal posture (specify):

(9) Unknown

EJECTION/ENTRAPMENT**12. Ejection**φ

- (0) No ejection
- (1) Complete ejection
- (2) Partial ejection
- (3) Ejection, unknown degree
- (9) Unknown

13. Ejection Areaφ

- (0) No ejection
- (1) Windshield
- (2) Left front
- (3) Right front
- (4) Left rear
- (5) Right rear
- (6) Rear
- (7) Roof
- (8) Other area (e.g., back of pickup, etc.)
(specify): _____
- (9) Unknown

14. Ejection Mediumφ

- (0) No ejection
- (1) Door/hatch/tailgate
- (2) Nonfixed roof structure
- (3) Fixed glazing
- (4) Nonfixed glazing (specify): _____
- (5) Integral structure
- (8) Other medium (specify): _____
- (9) Unknown

15. Medium Status (Immediately Prior To Impact) φ

- (0) No ejection
- (1) Open
- (2) Closed
- (3) Integral structure
- (9) Unknown

16. Entrapmentφ

- (NOTE: Entrapped means that part of the person was in the vehicle and mechanically restrained; jammed doors and immobilizing injuries by themselves are not sufficient to constitute entrapment.)
- (0) Not entrapped
 - (1) Entrapped
 - (9) Unknown

RESTRAINT SYSTEM EVALUATION

17. Manual (Active) Belt System Availability 4

- (0) None available
- (1) Belt removed/destroyed
- (2) Shoulder belt
- (3) Lap belt
- (4) Lap and shoulder belt
- (5) Belt available—type unknown

Integral Belt Partially Destroyed

- (6) Shoulder belt (lap belt destroyed/removed)
- (7) Lap belt (shoulder belt destroyed/removed)

(8) Other belt (specify): _____

(9) Unknown _____

18. Manual (Active) Belt System Use φ φ

- (00) None used, not available, or belt removed/destroyed
- (01) Inoperative (specify): _____

(02) Shoulder belt _____

(03) Lap belt _____

(04) Lap and shoulder belt _____

(05) Belt used—type unknown _____

(08) Other belt used (specify): _____

(12) Shoulder belt used with child safety seat _____

(13) Lap belt used with child safety seat _____

(14) Lap and shoulder belt used with child safety seat _____

(15) Belt used with child safety seat—type unknown _____

(18) Other belt used with child safety seat (specify): _____

(99) Unknown if belt used _____

19. Proper Use of Manual (Active) Belts φ

- (0) None used or not available
- (1) Belt used properly
- (2) Belt used properly with child safety seat

Belt Used Improperly

- (3) Shoulder belt worn under arm
- (4) Shoulder belt worn behind back or seat
- (5) Belt worn around more than one person
- (6) Lap belt worn on abdomen
- (7) Lap belt or lap and shoulder belt used improperly with child safety seat (specify): _____

(8) Other improper use of manual belt system (specify): _____

(9) Unknown _____

20. Manual (Active) Belt Failure Modes During Accident φ

- (0) No manual belt used
- (1) No manual belt failure(s)
- (2) Torn webbing (stretched webbing not included)
- (3) Broken buckle or latchplate
- (4) Upper anchorage separated
- (5) Other anchorage separated (specify): _____

(6) Broken retractor _____

(7) Combination of above (specify): _____

(8) Other manual belt failure (specify): _____

(9) Unknown _____

21. Air Bag System Availability/Function 1

- (0) Not equipped/not available
- (1) Air bag

Non-functional

(2) Air bag disconnected (specify): _____

(3) Air bag not reinstalled _____

(9) Unknown _____

22. Air Bag System Deployment 1

- (0) Not equipped/not available
- (1) Air bag deployed during accident (as a result of impact)
- (2) Air bag deployed inadvertently just prior to accident
- (3) Air bag deployed, accident sequence undetermined
- (4) Nondeployed
- (5) Unknown if deployed
- (6) Air bag deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)
- (9) Unknown

23. Are There Indications of Air Bag System Failure? 1

- (0) Not equipped/not available
- (1) No
- (2) Yes (specify): _____

(9) Unknown _____

Note: See Variables 44 through 48 (Page 5) for Information on Automatic Belts

24. Police Reported Restraint Use φ

- (0) None used
- (1) Police did not indicate restraint use
- (2) Shoulder belt
- (3) Lap belt
- (4) Lap and shoulder belt
- (5) Belt used, type not specified
- (6) Child safety seat
- (7) Other or automatic restraint (specify): _____

(8) Restrained, type unknown _____

(9) Police indicated "unknown" _____

HEAD RESTRAINT AND SEAT EVALUATION

25. Head Restraint Type/Damage by Occupant at This Occupant Position

3

- (0) No head restraints
- (1) Integral—no damage
- (2) Integral—damaged during accident
- (3) Adjustable—no damage
- (4) Adjustable—damaged during accident
- (5) Add-on—no damage
- (6) Add-on—damaged during accident
- (8) Other (specify):

(9) Unknown

26. Seat Type (this Occupant Position)

02

- (00) Occupant not seated or no seat
- (01) Bucket
- (02) Bucket with folding back
- (03) Bench
- (04) Bench with separate back cushions
- (05) Bench with folding back(s)
- (06) Split bench with separate back cushions
- (07) Split bench with folding back(s)
- (08) Pedestal (i.e., column supported)
- (09) Other seat type (specify):

(10) Box mounted seat (i.e., van type)

(99) Unknown

27. Seat Performance (this Occupant Position)

8

- (0) Occupant not seated or no seat
- (1) No seat performance failure(s)
- (2) Seat adjusters failed
- (3) Seat back folding locks or "seat back" failed
- (4) Seat track/anchors failed
- (5) Deformed by impact of occupant
- (6) Deformed by passenger compartment intrusion (specify):

(7) Combination of above (specify):

(8) Other (specify):

(9) Unknown

NO STRUCTURAL DAMAGE - FABRIC AND PADDING DESTROYED BY FIRE

CHILD SAFETY SEAT

28. Child Safety Seat Make/Model φ φ φ
 (000) No child safety seat
 Applicable codes are found in your NASS CDS
 Data Collection, Coding and Editing
 (950) Built-in child safety seat
 (997) Other make/model (specify):

(998) Unknown make/model
 (999) Unknown if child safety seat used

29. Type of Child Safety Seat φ
 (0) No child safety seat
 (1) Infant seat
 (2) Toddler seat
 (3) Convertible seat
 (4) Booster seat
 (7) Other type child safety seat (specify):

(8) Unknown child safety seat type
 (9) Unknown if child safety seat used

30. Child Safety Seat Orientation φ φ
 (00) No child safety seat

Designed for Rear Facing for This Age/Weight

(01) Rear facing
 (02) Forward facing
 (08) Other orientation (specify):

(09) Unknown orientation

Designed For Forward Facing for This Age/Weight

(11) Rear facing
 (12) Forward facing
 (18) Other orientation (specify):

(19) Unknown orientation

Unknown Design or Orientation For This Age/Weight, or Unknown Age/Weight

(21) Rear facing
 (22) Forward facing
 (28) Other orientation (specify):

(29) Unknown orientation

(99) Unknown if child safety seat used

31. Child Safety Seat Harness Usage φ φ

32. Child Safety Seat Shield Usage φ φ

33. Child Safety Seat Tether Usage φ φ

Note: Options below applicable to
 Variables OA31-OA33.

(00) No child safety seat

Not Designed With Harness/Shield/Tether

(01) After market harness/shield/tether
 added, not used
 (02) After market harness/shield/tether used
 (03) Child safety seat used, but no after market
 harness/shield/tether added
 (09) Unknown if harness/shield/tether
 added or used

Designed With Harness/Shield/Tether

(11) Harness/shield/tether not used
 (12) Harness/shield/tether used
 (19) Unknown if harness/shield/tether used

Unknown If Designed With Harness/Shield/Tether

(21) Harness/shield/tether not used
 (22) Harness/shield/tether used
 (29) Unknown if harness/shield/tether used

(99) Unknown if child safety seat used

INJURY CONSEQUENCES34. Injury Severity (Police Rating) 3

- (0) O - No injury
- (1) C - Possible injury
- (2) B - Nonincapacitating injury
- (3) A - Incapacitating injury
- (4) K - Killed
- (5) U - Injury, severity unknown
- (6) Died prior to accident
- (9) Unknown

35. Treatment - Mortality 1

- (0) No treatment
- (1) Fatal
- (2) Fatal - ruled disease (specify):

Nonfatal

- (3) Hospitalization
- (4) Transported and released
- (5) Treatment at scene - nontransported
- (6) Treatment later
- (8) Treatment - other (specify):
- (9) Unknown

36. Type Of Medical Facility (for Initial Treatment) 2

- (0) Not treated at a medical facility
- (1) Trauma center
- (2) Hospital
- (3) Medical clinic
- (4) Physician's office
- (5) Treatment later at medical facility
- (8) Other (specify):
- (9) Unknown

37. Hospital Stay 13

- (00) Not Hospitalized
- Code the number of days (up through 60) that the occupant stayed in hospital.
- (61) 61 days or more
- (99) Unknown

99. Case Occupant 1

- (0) Not the Case Occupant
- (1) This is the Case Occupant
- (2) This is the Case Occupant in another case.

38. Working Days Lost 62

- Code the number of days (up through 60) that the occupant lost from work due to the accident
- (00) No working days lost
- (61) 61 days or more
- (62) Fatally injured
- (97) Not working prior to accident
- (99) Unknown

STOP - GO TO VARIABLE 44 ON PAGE 7**VARIABLES 39 THROUGH 43 ARE COMPLETED BY THE ZONE CENTER**39. Time to Death 43

- Code number of hours from time of accident to time of death up through 24 hours. If time of death is greater than 24 hours, code number of days. (Note: 1 day = 31, 2 days = 32, ... n days = 30 + n up through 30 days = 60)
- (00) Not fatal
- (96) Fatal - ruled disease
- (99) Unknown

40. 1st Medically Reported Cause of Death 9641. 2nd Medically Reported Cause of Death 9742. 3rd Medically Reported Cause of Death 00

- Code the Occupant Injury from line number(s) for the medically reported injury(s) which reportedly contributed to this occupant's death
- (00) Not fatal or no additional causes
- (96) Mode of death given but specific injuries are not linked to cause of death. (specify):

35% TBS 2° and 3° BURNS

- (97) Other result (includes fatal ruled disease) (specify):
- ISCHEMIC HEART DISEASE
- (99) Unknown

43. Number of Recorded Injuries for This Occupant 04

- Code the actual number of injuries recorded for this occupant.
- (00) No recorded injuries
- (97) Injured, details unknown
- (99) Unknown if injured

AUTOMATIC BELT SYSTEM**44. Automatic (Passive) Belt System Availability/Function** φ

- (0) Not equipped/not available
- (1) 2 point automatic belts
- (2) 3 point automatic belts
- (3) Automatic belts - type unknown

Non-functional

- (4) Automatic belts destroyed or rendered inoperative
- (9) Unknown

45. Automatic (Passive) Belt System Use φ

- (0) Not equipped/not available/destroyed or rendered inoperative
- (1) Automatic belt in use
- (2) Automatic belt not in use (manually disconnected, motorized track inoperative) (specify): _____

- (3) Automatic belt use unknown
- (9) Unknown

46. Automatic (Passive) Belt System Type φ

- (0) Not equipped/not available
- (1) Non-motorized system
- (2) Motorized system
- (9) Unknown

47. Proper Use of Automatic (Passive) Belt System φ

- (0) Not equipped/not available/not used
- (1) Automatic belt used properly
- (2) Automatic belt used properly with child safety seat

Automatic Belt Used Improperly

- (3) Automatic shoulder belt worn under arm
- (4) Automatic shoulder belt worn behind back
- (5) Automatic belt worn around more than one person
- (6) Lap portion of automatic belt worn on abdomen
- (7) Automatic lap and shoulder belt or automatic shoulder belt used improperly with child safety seat (specify): _____
- (8) Other improper use of automatic belt system (specify): _____
- (9) Unknown

48. Automatic (Passive) Belt Failure Modes During Accident φ

- (0) Not equipped/not available/not in use
- (1) No automatic belt failure(s)
- (2) Torn webbing (stretched webbing not included)
- (3) Broken buckle or latchplate
- (4) Upper anchorage separated
- (5) Other anchorage separated (specify): _____

- (6) Broken retractor
- (7) Combination of above (specify): _____
- (8) Other automatic belt failure (specify): _____

- (9) Unknown

49. Seat Orientation (this Occupant Position) 1

- (0) Occupant not seated or no seat
- (1) Forward facing seat
- (2) Rear facing seat
- (3) Side facing seat (inward)
- (4) Side facing seat (outward)
- (8) Other (specify): _____

- (9) Unknown

STOP - VARIABLES 50 THROUGH 52 ARE COMPLETED BY THE ZONE CENTER

TRAUMA DATA**50. Glasgow Coma Scale (GCS) Score** φ 2
(at Medical Facility)

- (00) Not injured
- (01) Injured - not treated at medical facility
- (02) No GCS Score at medical facility
- (03-15) Code the actual value of the initial GCS Score recorded at medical facility.
- (97) Injured, details unknown
- (99) Unknown if injured

51. Was the Occupant Given Blood? 1

- (1) No - blood not given
- (2) Yes - blood given (specify units): _____
- (9) Unknown if blood given

52. Arterial Blood Gases (ABG) - HCO₃ φ 1

- (00) Not injured
- (01) Injured, ABGs not measured or reported
- (02-50) Code the actual value of the HCO₃
- (96) ABGs reported, HCO₃ unknown
- (97) Injured, details unknown
- (99) Unknown if injured

ARE ALL APPLICABLE MEDICAL RECORDS INCLUDED WITH INITIAL SUBMISSION?

NO [] YES [X]

UPDATE CANDIDATE?

NO [X] YES []



U.S. Department of Transportation
National Highway Traffic Safety
Administration

OCCUPANT INJURY FORM

BEST AVAILABLE COPY
Form Approved
O.M.B. No. 2127-0021
NATIONAL ACCIDENT SAMPLING SYSTEM
CRASHWORTHINESS DATA SYSTEM

1. Primary Sampling Unit Number

3. Vehicle Number

2. Case Number - Stratum

DSI-93-A8-043

4. Occupant Number

INJURY DATA

Record below the actual injuries sustained by this occupant that were identified from the official and unofficial data sources. Remember not to double count an injury just because it was identified from two different sources. If greater than ten injuries have been documented, encode the balance on the Occupant Injury Supplement.

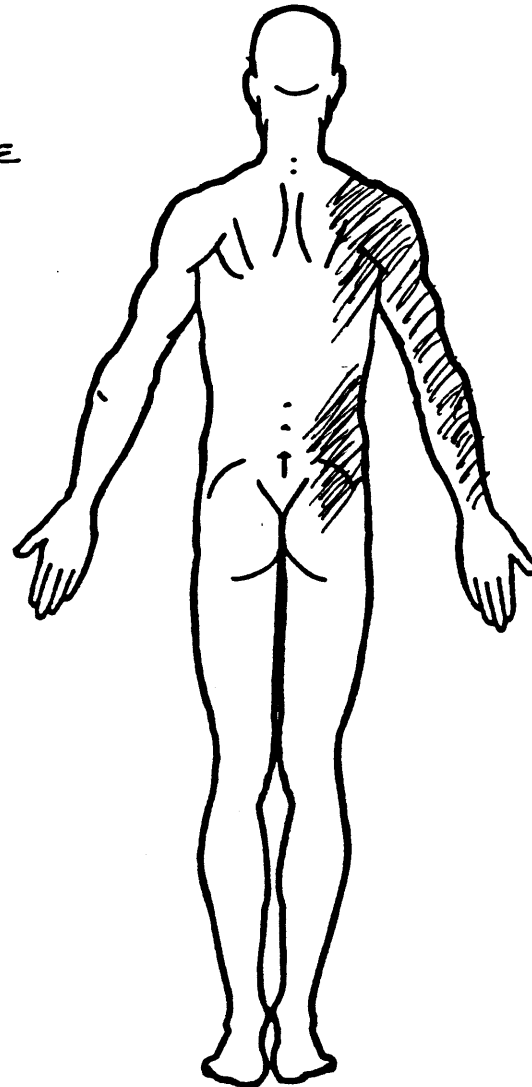
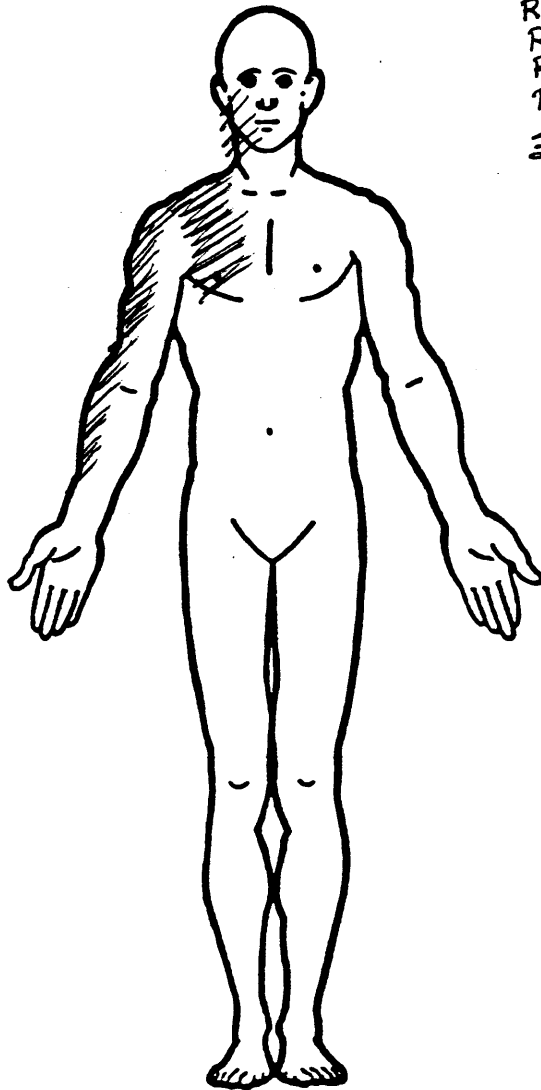
Source of Injury Data	O.I.C.-A.I.S						Injury Source	Injury Source Confidence Level	Direct/Indirect Injury	Occupant Area Intrusion Number	ICD-9	
	Body Region	Type of Anatomic Structure	Specific Anatomic Structure	Level of Injury	A.I.S. Severity	Aspect						
1st	5. 2	6. 9	7. 9	8. 2 0	9. 2 4	10. 4	11. 0	12. 2 0	13. 1	14. 1	15. 0 0	948.32
2nd	16. 2	17. 4	18. 4	19. 1 4	20. 0 2	21. 3	22. 1	23. 0 6	24. 1	25. 2	26. 0 0	861.21
3rd	27. 2	28. 4	29. 4	30. 1 4	31. 1 4	32. 3	33. 1	34. 0 6	35. 1	36. 2	37. 0 0	861.22
4th	38. 2	39. 4	40. 5	41. 0 2	42. 2 0	43. 2	44. 1	45. 0 6	46. 1	47. 1	48. 0 0	807.02
5th	49.	50.	51.	52.	53.	54.	55.	56.	57.	58.	59.	
6th	60.	61.	62.	63.	64.	65.	66.	67.	68.	69.	70.	
7th	71.	72.	73.	74.	75.	76.	77.	78.	79.	80.	81.	
8th	82.	83.	84.	85.	86.	87.	88.	89.	90.	91.	92.	
9th	93.	94.	95.	96.	97.	98.	99.	100.	101.	102.	103.	
10th	104.	105.	106.	107.	108.	109.	110.	111.	112.	113.	114.	

OFFICIAL INJURY DATA — SOFT TISSUE INJURIES

Indicate the Location, Specific Anatomic Structure, Detail (size, depth, fracture type, head injury clinical signs and neurological deficits), and Source of all injuries indicated by official sources (or from PAR or other unofficial sources if medical records and interviewee data are unavailable.)

2° AND 3° BURNS

R. CHEST
R. SHOULDER
R. ARM
R. BUTTOCKS/FLANK
35% OF BODY SURFACE



SOURCE OF INJURY DATA**OFFICIAL**

- (1) Autopsy records with or without hospital/medical records
- (2) Hospital/medical records other than emergency room (e.g., discharge summary)
- (3) Emergency room records only (including associated X-rays or other lab reports)
- (4) Private physician, walk-in or emergency clinic

UNOFFICIAL

- (5) Lay coroner report
- (6) E.M.S. personnel
- (7) Interviewee
- (8) Other source (specify): _____
- (9) Police

INJURY SOURCE**FRONT**

- (01) Windshield
- (02) Mirror
- (03) Sunvisor
- (04) Steering wheel rim
- (05) Steering wheel hub/spoke
- (06) Steering wheel (combination of codes 04 and 05)
- (07) Steering column, transmission selector lever, other attachment
- (08) Add on equipment (e.g., CB, tape deck, air conditioner)
- (09) Left instrument panel and below
- (10) Center instrument panel and below
- (11) Right instrument panel and below
- (12) Glove compartment door
- (13) Knee bolster
- (14) Windshield including one or more of the following: front header, A (A1/A2)-pillar, instrument panel, mirror, or steering assembly (driver side only)
- (15) Windshield including one or more of the following: front header, A (A1/A2)-pillar, instrument panel, or mirror (passenger side only)
- (16) Driver side air bag compartment cover
- (17) Passenger side air bag compartment cover
- (18) Windshield reinforced by exterior object (specify): _____
- (19) Other front object (specify): _____

LEFT SIDE

- (20) Left side interior surface, excluding hardware or armrests
- (21) Left side hardware or armrest
- (22) Left A (A1/A2)-pillar
- (23) Left B-pillar
- (24) Other left pillar (specify): _____

- (25) Left side window glass or frame
- (26) Left side window glass including one or more of the following: frame, window sill, A (A1/A2)-pillar, B-pillar, or roof side rail.
- (27) Other left side object (specify): _____
- (28) Left side window sill

RIGHT SIDE

- (30) Right side interior surface, excluding hardware or armrests
- (31) Right side hardware or armrest
- (32) Right A (A1/A2)-pillar
- (33) Right B-pillar
- (34) Other right pillar (specify): _____
- (35) Right side window glass or frame
- (36) Right side window glass including one or more of the following: frame, window sill, A (A1/A2)-pillar, B-pillar, or roof side rail.
- (37) Other right side object (specify): _____

- (38) Right side window sill

INTERIOR

- (40) Seat, back support
- (41) Belt restraint webbing/buckle
- (42) Belt restraint B-pillar or door frame attachment point
- (43) Other restraint system component (specify): _____
- (44) Head restraint system
- (45) Air bag (use codes "16" and "17" for injuries sustained from air bag compartment covers)
- (46) Other occupants (specify): _____
- (47) Interior loose objects
- (48) Child safety seat (specify): _____
- (49) Other interior object (specify): _____

ROOF

- (50) Front header
- (51) Rear header
- (52) Roof left side rail
- (53) Roof right side rail
- (54) Roof or convertible top

FLOOR

- (56) Floor (including toe pan)
- (57) Floor or console mounted transmission lever, including console
- (58) Parking brake handle
- (59) Foot controls including parking brake

REAR

- (60) Backlight (rear window)

- (61) Backlight storage rack, door, etc.
- (62) Other rear object (specify): _____

EXTERIOR of OCCUPANT'S VEHICLE

- (65) Hood
- (66) Outside hardware (e.g., outside mirror, antenna)
- (67) Other exterior surface or tires (specify): _____
- (68) Unknown exterior objects

EXTERIOR of OTHER MOTOR VEHICLE

- (70) Front bumper
- (71) Hood edge
- (72) Other front of vehicle (specify): _____

- (73) Hood
- (74) Hood ornament
- (75) Windshield, roof rail, A-pillar
- (76) Side surface
- (77) Side mirrors
- (78) Other side protrusions (specify): _____

- (79) Rear surface
- (80) Undercarriage
- (81) Tires and wheels
- (82) Other exterior of other motor vehicle (specify): _____

- (83) Unknown exterior of other motor vehicle

OTHER VEHICLE OR OBJECT IN THE ENVIRONMENT

- (84) Ground
- (85) Other vehicle or object (specify): _____
- (86) Unknown vehicle or object

NONCONTACT INJURY

- (90) Fire in vehicle
- (91) Flying glass
- (92) Other noncontact injury source (specify): _____
- (93) Air bag exhaust gases
- (97) Injured, unknown source

INJURY SOURCE CONFIDENCE LEVEL

- (1) Certain
- (2) Probable
- (3) Possible
- (9) Unknown

DIRECT/INDIRECT INJURY

- (1) Direct contact injury
- (2) Indirect contact injury
- (3) Noncontact injury
- (7) Injured, unknown source

OCCUPANT INJURY CLASSIFICATION**Body Region**

- (1) Head
- (2) Face
- (3) Neck
- (4) Thorax
- (5) Abdomen
- (6) Spine
- (7) Upper Extremity
- (8) Lower Extremity
- (9) Unspecified

Type of Anatomic Structure

- (1) Whole Area
- (2) Vessels
- (3) Nerves
- (4) Organs (includes muscles/ligaments)
- (5) Skeletal (includes joints)
- (6) Head - LOC
- (9) Skin

Specific Anatomic Structure**Whole Area**

- (02) Skin - Abrasion
- (04) Skin - Contusion
- (06) Skin - Laceration
- (08) Skin - Avulsion
- (10) Amputation
- (20) Burn
- (30) Crush
- (40) Degloving
- (50) Injury - NFS
- (90) Trauma, other than mechanical

Head - LOC

- (02) Length of LOC
- (04, 06, 08) Level of Consciousness
- (10) Concussion

Spine

- (02) Cervical
- (04) Thoracic
- (06) Lumbar

Vessels, Nerves, Organs, Bones, Joints are assigned consecutive two digit numbers beginning with 02

Level of Injury

Specific injuries are assigned consecutive two-digit numbers beginning with 02.

To the extent possible, within the organizational framework of the AIS, 00 is assigned to an injury NFS as to severity or where only one injury is given in the dictionary for that anatomic structure. 99 is assigned to any injury NFS as to lesion or severity.

Abbreviated Injury Scale

- (1) Minor injury
- (2) Moderate injury
- (3) Serious injury
- (4) Severe injury
- (5) Critical injury
- (6) Maximum (untreatable)
- (7) Injured, unknown severity

Aspect

- (1) Right
- (2) Left
- (3) Bilateral
- (4) Central
- (5) Anterior
- (6) Posterior
- (7) Superior
- (8) Inferior
- (9) Unknown
- (0) Whole region

OFFICIAL INJURY DATA — SKELETAL INJURIES

Restrained?

___ No

___ Yes

Blood Alcohol
Level (mg/dl)

BAL = ___

Glasgow Coma
Scale Score

GCSS = ___

Units of Blood
Given

Units = ___

Arterial Blood
Gases

pH = ___

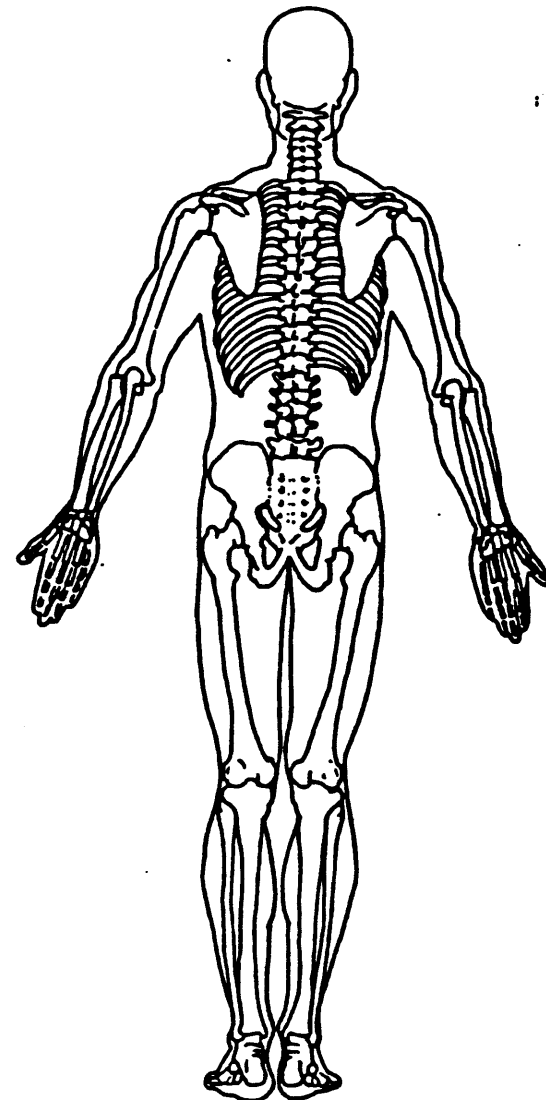
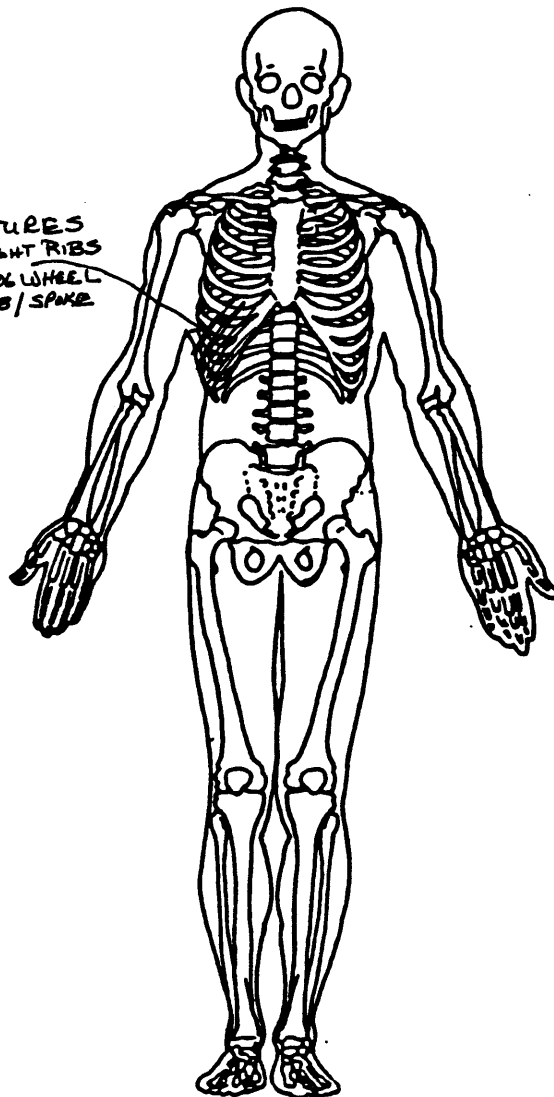
PO₂ = ___

PCO₂ = ___

HCO₃ = ___

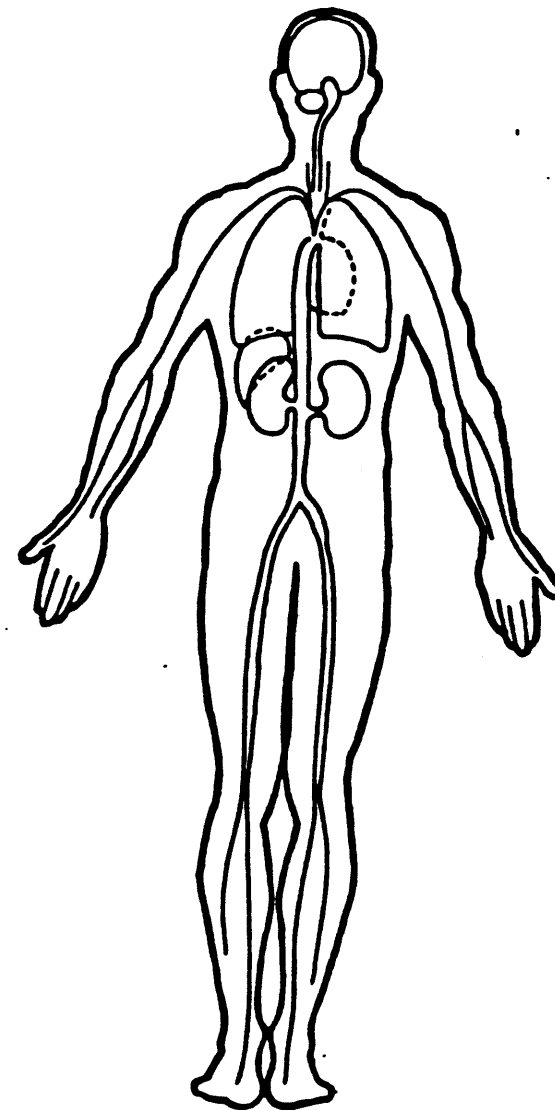
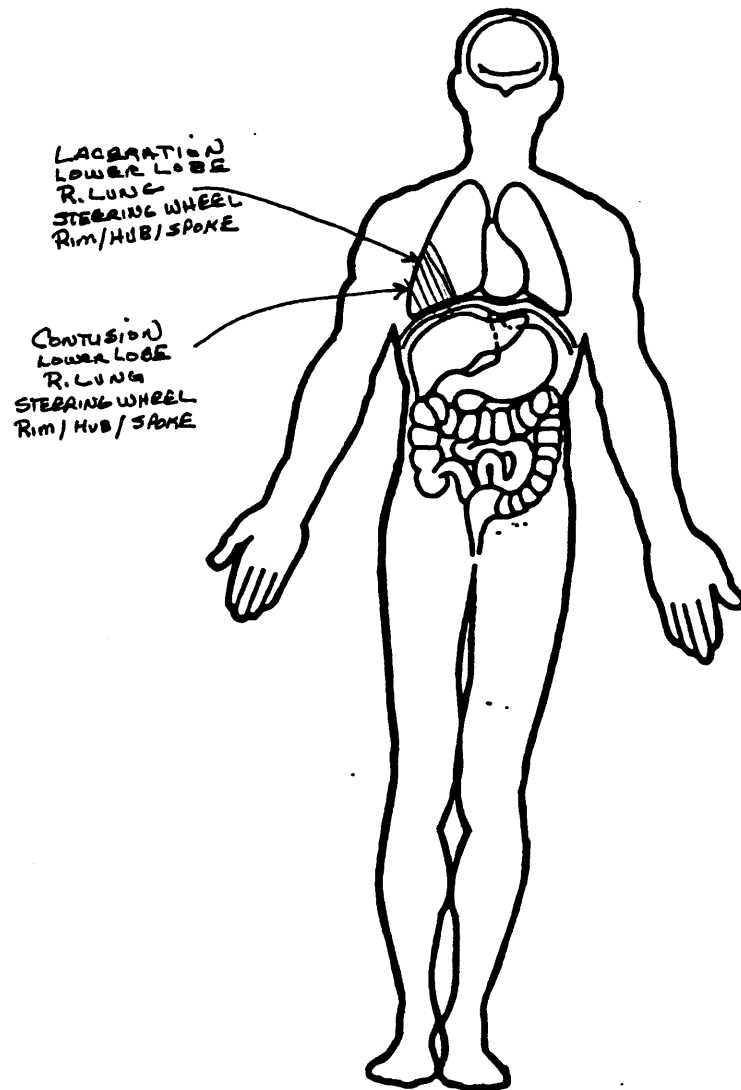
Indicate the Location, Specific Anatomic Structure, Detail (size, depth, fracture type, head injury clinical signs and neurological deficits), and Source of all injuries indicated by official sources (or from PAR or other unofficial sources if medical records and interviewee data are unavailable.)

FRACTURES
2 RIGHT RIBS
STEERING WHEEL
RIM/HUB/SPoke



OFFICIAL INJURY DATA —INTERNAL INJURIES

Indicate the Location, Specific Anatomic Structure, Detail (size, depth, fracture type, head injury clinical signs and neurological deficits), and Source of all injuries indicated by official sources (or from PAR or other unofficial sources if medical records and interviewee data are unavailable.)



SUMMARY OF CRASHPC RESULTS (USING SPINOUT)

CRASH3 RECONSTRUCTION

SPEED CHANGE (DAMAGE)	VEH #1	TOTAL(KPH)	LONG.(KPH)	LAT.(KPH)	ANG.(DEG)
	VEH #1	18.5	-18.5	.0	.0
	VEH #2	.0	.0	.0	.0

ENERGY DISSIPATED BY DAMAGE VEH#1: 19680.7 JOULES VEH#2: .0 JOULES

SUMMARY OF DAMAGE DATA VEHICLE # 1

(* INDICATES DEFAULT VALUE)
VEHICLE # 2

TYPE-----CATEGORY 3
 STIFFNESS---CATEGORY 3
 WEIGHT----- 1485.1 KGS
 CDC-----12FDEW1
 L----- 157.5 CM.
 C1----- 10.2 CM.
 C2----- 9.1 CM.
 C3----- 9.9 CM.
 C4----- 11.2 CM.
 C5----- 12.7 CM.
 C6----- 14.0 CM.
 D----- .0 CM.
 RHO----- 1.00 *
 ANG----- .0 DEG.
 D'----- 5.8 CM.

TYPE-----CATEGORY 11
 STIFFNESS---CATEGORY 0
 WEIGHT----- 453600.0 KGS *
 CDC-----BARRIER
 L----- .0 CM. *
 C1----- .0 CM. *
 C2----- .0 CM. *
 C3----- .0 CM. *
 C4----- .0 CM. *
 C5----- .0 CM. *
 C6----- .0 CM. *
 D----- .0 CM. *
 RHO----- 1.00 *
 ANG----- .0 DEG. *
 D'----- .0 CM.

DIMENSIONS AND INERTIAL PROPERTIES

A1 = 130.3 CM.
 B1 = 141.0 CM.
 TR1 = 149.6 CM.
 I1 = 319689.9 NEWT-SEC**2-CM
 M1 = 14.908 NEWT-SEC**2/CM
 XF1 = 228.1 CM.
 XR1 = -270.3 CM.
 YS1 = 92.2 CM.

A2 = 127.0 CM.
 B2 = 127.0 CM.
 TR2 = 127.0 CM.
 I2 = ***** NEWT-SEC**2-CM
 M2 = 4553.302 NEWT-SEC**2/CM
 XF2 = 127.0 CM.
 XR2 = -127.0 CM.
 YS2 = 127.0 CM.

SUMMARY OF CRASHPC RESULTS (USING SPINOUT)

CRASH3 RECONSTRUCTION

SPEED CHANGE (DAMAGE)	VEH #1	TOTAL(MPH)	LONG.(MPH)	LAT.(MPH)	ANG.(DEG)
	VEH #1	11.5	-11.5	.0	.0
	VEH #2	.0	.0	.0	.0

ENERGY DISSIPATED BY DAMAGE VEH#1: 14513.8 FT-LB VEH#2: .0 FT-LB

SUMMARY OF DAMAGE DATA VEHICLE # 1

(* INDICATES DEFAULT VALUE)
VEHICLE # 2

TYPE-----CATEGORY 3
STIFFNESS---CATEGORY 3
WEIGHT----- 3274.0 LBS.
CDC-----12FDEW1
L----- 62.0 IN.
C1----- 4.0 IN.
C2----- 3.6 IN.
C3----- 3.9 IN.
C4----- 4.4 IN.
C5----- 5.0 IN.
C6----- 5.5 IN.
D----- .0
RHO----- 1.00 *
ANG----- .0 DEG.
D'----- 2.3 IN.

TYPE-----CATEGORY 11
STIFFNESS---CATEGORY 0
WEIGHT-----1000000.0 LBS. *
CDC-----BARRIER
L----- .0 IN. *
C1----- .0 IN. *
C2----- .0 IN. *
C3----- .0 IN. *
C4----- .0 IN. *
C5----- .0 IN. *
C6----- .0 IN. *
D----- .0 *
RHO----- 1.00 *
ANG----- .0 DEG. *
D'----- .0 IN.

DIMENSIONS AND INERTIAL PROPERTIES

A1	=	51.3	IN.	A2	=	50.0	IN.
B1	=	55.5	IN.	B2	=	50.0	IN.
TR1	=	58.9	IN.	TR2	=	50.0	IN.
I1	=	28296.3	LB-SEC**2-IN	I2	=	2600104000.0	LB-SEC**2-IN
M1	=	8.513	LB-SEC**2/IN	M2	=	2600.104	LB-SEC**2/IN
XP1	=	89.8	IN.	XP2	=	50.0	IN.
XR1	=	-106.4	IN.	XR2	=	-50.0	IN.
YS1	=	36.3	IN.	YS2	=	50.0	IN.



CRASHPC PROGRAM SUMMARY

(All Measurements in Metric)

NATIONAL ACCIDENT SAMPLING SYSTEM
CRASHWORTHINESS DATA SYSTEM

Identifying Title		<u>DSI-93-AB-003</u>		<u>01</u>		<u>9 3</u>	
Primary Sampling Unit		Case No.-Stratum		Accident Event Sequence No.		Date (Month, day, year) of Run	

CRASHPC Vehicle Identification			
Vehicle 1	<u>1991</u>	<u>CHEVROLET</u>	<u>CAMERO Z28</u>
Vehicle 2			<u>01</u>
	Year	Make	Model
			NASS Veh. No.

GENERAL INFORMATION

VEHICLE 1		VEHICLE 2	
Size	<u>3</u>	Size	<u>11</u>
Weight		Weight	
<u>1408</u> + <u>78</u> + <u> </u> = <u>1486</u> kg		<u> </u> + <u> </u> + <u> </u> = <u> </u> kg	
Curb Occupant(s) Cargo		Curb Occupant(s) Cargo	
CDC	<u>1 2 F D E W 1</u>	CDC	<u> </u>
PDOF (-180 to +180)	<u>± 0 0 0 °</u>	PDOF (-180 to +180)	<u>± °</u>
Stiffness	<u>3</u>	Stiffness	<u> </u>

SCENE INFORMATION

Rest and Impact Positions <input type="checkbox"/> No, Go To Damage Information <input type="checkbox"/> Yes			
VEHICLE 1		VEHICLE 2	
Rest Position	X <u> </u> m Y <u> </u> m PSI <u> </u> °	Rest Position	X <u> </u> m Y <u> </u> m PSI <u> </u> °
Impact Position	X <u> </u> m Y <u> </u> m PSI <u> </u> °	Impact Position	X <u> </u> m Y <u> </u> m PSI <u> </u> °
Slip Angle(-180 to +180)	<u> </u> °	Slip Angle (-180 to +180)	<u> </u> °

VEHICLE MOTION

Sustained Contact <input type="checkbox"/> No <input type="checkbox"/> Yes	
VEHICLE 1	VEHICLE 2
Skidding (Rotation) <input type="checkbox"/> No <input type="checkbox"/> Yes	Skidding (Rotation) <input type="checkbox"/> No <input type="checkbox"/> Yes
Skidding Stop Before Rest <input type="checkbox"/> No <input type="checkbox"/> Yes	Skidding Stop Before Rest <input type="checkbox"/> No <input type="checkbox"/> Yes
End of Rotation Position X <u> </u> m Y <u> </u> m PSI <u> </u> °	End of Rotation Position X <u> </u> m Y <u> </u> m PSI <u> </u> °
Curved Path <input type="checkbox"/> No <input type="checkbox"/> Yes	Curved Path <input type="checkbox"/> No <input type="checkbox"/> Yes
Point on Path X <u> </u> m Y <u> </u> m	Point on Path X <u> </u> m Y <u> </u> m
Rotation Direction <input type="checkbox"/> None <input type="checkbox"/> CW <input type="checkbox"/> CCW	Rotation Direction <input type="checkbox"/> None <input type="checkbox"/> CW <input type="checkbox"/> CCW
Rotation >360° <input type="checkbox"/> No <input type="checkbox"/> Yes	Rotation >360° <input type="checkbox"/> No <input type="checkbox"/> Yes

AIRBAG SUPPLEMENT

1

ACCIDENT SUMMARY

1. Accident Date: ~~██████~~ 92
2. Police Investigated ☒
- (1) Yes
(2) No
(3) Unknown
- Agency:
City:
County: HARRISON, W. VIRGINIA
3. General Locality ☒
- (1) Freeway, Limited Access
(2) Urban (City)
(3) Urban-Rural (mixed)
(4) Rural, Fields
4. Configuration (First Harm) ☒
- (0) Struck Object or Ped
(1) Rear-End
(2) Head-On
(3) Rear-to-Rear
(4) Angle
(5) Sideswipe-Same Direction
(6) Sideswipe-Opposite Dir.
(7) Noncollision
(8) Nonimpact Deployment
(9) Unknown
5. Fire Involved ☒
- (0) None
(1) Airbag Vehicle
(2) Other Vehicle
(3) Both Vehicles
(9) Unknown
6. Vehicles Involved ☒
7. Persons Involved ☒
8. Injured Persons ☒

9. Maximum AIS in Accident ☒

AIRBAG VEHICLE INSPECTION

10. Date Vehicle Inspected: ~~██████~~ 93
11. Reason Vehicle Note Inspected ☒
- (0) Not Required
(1) Inspection Completed
(2) Cannot be Located
(3) Repaired or Destroyed
(5) Refusal or Impounded
(7) Other:
12. Impact Data Obtained ☒
- (0) No Data Obtained
(1) CDC Only
(2) Crush Profile Only
(3) Trajectory Data Only
(4) CDC and Crush Profile
(5) CDC and Trajectory
(6) Crush and Trajectory
(7) CDC, Crush, and Trajectory
13. Basis of Delta-V ☒
- (0) Not Computed (Unknown why)
(1) CRASH - Damage Only
(2) CRASH - Damage + Traj
(3) OLDMISS
(4) POLES
(5) Unknown Basis
(6) One Vehicle Beyond Scope
(7) Collision Beyond Scope
(8) Insufficient Data

VEHICLE HISTORY

14. Prior Impacts for AB Vehicle? ☒
- (1) Yes
(2) No
(9) Unknown
15. Prior AB Maintenance or Service ☒
- (1) Yes, (2) No, (9) Unknown

Describe:

AIRBAG SUPPLEMENT

2

AIRBAG VEHICLE

Fleet: *N/A*
VIN: *1G1FP23F8ML*
Mileage: *(Est) 12,676 km (7566 miles)*

SYSTEM READINESS LAMP

16. Pre-Impact Lamp Condition 1
(1) Functioning/Proved Out
(2) Inoperative *(Intermittent)*
(9) Unknown
17. Driver's Report of Pre-Impact Flashing 69
(00) No Flashing Reported
(01) Continuous Flashing
(02) _____
Number of Flashes: _____
(11) _____
(12) Constant Light
(19) Flashing, Unknown Number
(88) Not Applicable, System Removed
(99) Unknown
18. Period of Pre-Impact Flashing 2
(0) No Flashing
(1) Same Day as Impact
(2) Prior Day
(3) Prior Two Days
(4) Prior Week
(5) Prior Month
(6) Over One Month
(9) Unknown
19. Post-Impact Lamp Condition 2
(1) Functioning/Proved Out
(2) Inoperative
(9) Unknown
20. Post-Impact Flashing 99
(00) No Flashing Reported
(01) Continuous Flashing
(02) _____
Number of Flashes: _____
(11) _____
(12) Constant Light
(19) Flashing, Unknown Number
(88) Not Applicable, System Removed
(99) Unknown

21. Airbag Vehicle First Harmful Event 37

- (01) Fire or explosion
(02) Immersion
(03) Gas Inhalation
(04) Fell from vehicle
(05) Injured in vehicle
(06) Other noncollision (specify):
(07) Overturn
(08) Jackknife
COLLISION WITH:
(09) Pedestrian
(10) Pedalcyclist
(11) Railway train
(12) Animal
(13) Motor vehicle in transport (same roadway)
(14) Motor vehicle in transport (other roadway)
(15) Parked motor vehicle
(16) Other type nonmotorist (specify):
(17) Thrown or falling object
(18) Boulder
COLLISION WITH FIXED OBJECT
(20) Building
(21) Impact attenuator/crash cushion
(22) Bridge pier or abutment
(23) Bridge parapet end
(24) Bridge rail
(25) Guardrail
(26) Concrete traffic barrier
(27) Median barrier
(28) Other longitudinal barrier (specify):
(29) Highway/traffic sign post
(30) Overhead sign support
(31) Luminaire/light support
(32) Utility pole
(33) Other post, pole, or support
(34) Culvert
(35) Curb
(36) Ditch
(37) Embankment-earth
(38) Embankment-rock, stone, or concrete
(39) Fence
(40) Wall
(41) Fire hydrant
(42) Shrubbery
(43) Tree
(44) Other fixed object (specify):
(45) Pavement surface irregularity
(99) Unknown

AIRBAG SUPPLEMENT

3

AIRBAG VEHICLE IMPACT SUMMARY

22. Vehicle Role
- (0) Noncollision
 - (1) Striking unit
 - (2) Struck unit
 - (3) Both striking and struck
 - (9) Unknown

1

23. Manner of Leaving Scene
- (1) Driven
 - (2) Towed-due to damage
 - (3) Towed-not for damage
 - (4) Towed-details unknown
 - (5) Abandoned
 - (9) Unknown

2

24. Number of Impact Events
- (8) 8 or more
 - (9) Unknown

5

25. Rollover
- (0) No rollover
 - (1) First event
 - (2) Subsequent event
 - (3) Yes, Unknown event
 - (9) Unknown

φ

26. Override/Underride
- (0) No override/underride
 - (1) Override - 1st CDC
 - (2) Override - Other CDC
 - (3) Underride - 1st CDC
 - (4) Underride - Other CDC
 - (9) Unknown

φ

AIRBAG VEHICLE DAMAGE

CODES: (1) Yes, (2) No, (9) Unknown

27. Left Front Fender Damage
28. Right Front Fender Damage
29. Center Top of Grille Damage

2

1

2

FRONT BUMPER E.A. STATUS

30. Left

3

31. Right

3

- (1) Normal
- (2) Extended
- (3) Partial Compression
- (4) Complete Compression
- (5) Not Applicable
- (9) Unknown

FIRST AIRBAG VEHICLE IMPACT:

32. Configuration

φ

- (0) Struck Object or Ped
- (1) Rear-End
- (2) Head-On
- (3) Rear-to-Rear
- (4) Angle
- (5) Sideswipe-Same Direction
- (6) Sideswipe-Opposite Dir.
- (7) Noncollision
- (8) Nonimpact Deployment
- (9) Unknown

33. CDC: 12 FDEW1

34. Object Contacted: EARTH Embankment

PRIMARY/DEPLOYMENT IMPACT:

35. Event Number

1

36. Total Delta-V

19 (12MPH)

37. Longitudinal Delta-V

19 (-12MPH)

38. Configuration

φ

See 32 above for codes

39. CDC: 12 FDEW1

40. Object Contacted: EARTH EMBANKMENT

AIRBAG SUPPLEMENT

4

AIRBAG SYSTEM DAMAGE

CODES: (1) Yes, Damaged
(2) No, Intact
(3) Not Applicable
(9) Unknown

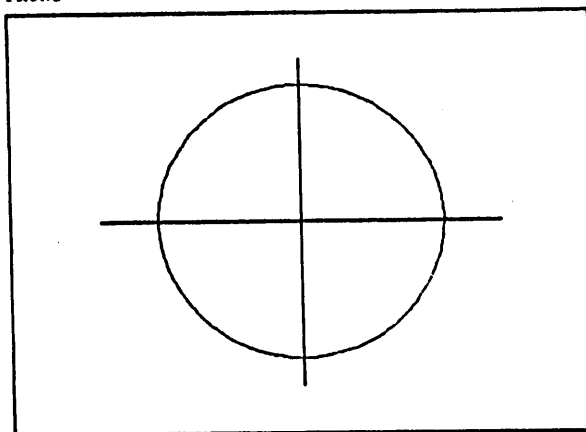
- | | |
|---|---|
| 41. Airbag Module | <div style="border: 1px solid black; padding: 2px 5px;">1</div> |
| 42. Left Front Sensor | <div style="border: 1px solid black; padding: 2px 5px;">3</div> |
| 43. Center Front Sensor | <div style="border: 1px solid black; padding: 2px 5px;">1</div> |
| 44. Right Front Sensor | <div style="border: 1px solid black; padding: 2px 5px;">3</div> |
| 45. Rear Cowl Sensor | <div style="border: 1px solid black; padding: 2px 5px;">3</div> |
| 46. Diagnostic Module | <div style="border: 1px solid black; padding: 2px 5px;">1</div> |
| 47. Wiring | <div style="border: 1px solid black; padding: 2px 5px;">1</div> |
| 48. Knee Diverter | <div style="border: 1px solid black; padding: 2px 5px;">1</div> |
| 49. Indication of disconnected or loose electrical connectors | <div style="border: 1px solid black; padding: 2px 5px;">9</div> |
| 50. Condition of Deployed Bag | <div style="border: 1px solid black; padding: 2px 5px;">5</div> |

DESCRIBE SYSTEM AND BAG DAMAGE:

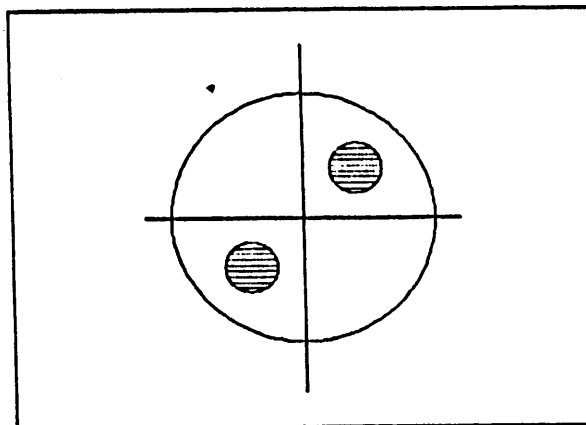
AIR BAG AND MODULE DESTROYED BY FIRE

NOTE DAMAGE AND CONTACT MARKS ON AIRBAG DIAGRAMS BELOW:

FRONT



BACK



AIRBAG SUPPLEMENT

6

DRIVER BELT USAGE: (1) Used (2) Not Used (9) Unknown

2

Evidence:

DRIVER POSTURE: Any comments Recorded (1) Yes, (2) No

2

Describe driver's posture and position on seat including specific comments on head, torso, buttocks, legs, and feet. Also note hand and arm position. Did driver brace before crash? Describe:

DRIVER FOREIGN OBJECTS: Comments Recorded (1) Yes, (2) No

2

Was driver wearing contact lenses or eyeglasses? Or holding any foreign object at the time of the impact (packages on lap, pipe, food, bottle, cigarette, etc.)? Did any lenses, objects, or jewelry play any role?:

DRIVER COMMENTS: Comments Recorded (1) Yes, (2) No

2

Was the driver aware that the vehicle was equipped with a supplemental restraint system? Did driver offer any comments on smoke, noise, etc.? Did the driver comment on the airbag as a restraint system? Describe:

PASSENGER-AIRBAG CONTACT: (1) Yes, (2) No, (9) Unknown

2

Describe:

SECTION 9J-B

SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM REMOVAL AND INSTALLATION PROCEDURES

The following "Notice" applies to one or more steps in the assembly procedure of components in this portion of the manual as indicated at appropriate locations by the terminology: "NOTICE: See "Notice" on page 9J-B-1 of this section."

NOTICE: When fasteners are removed, always reinstall them at the same location from which they were removed. If a fastener needs to be replaced, use the correct part number fastener for that application. If the correct part number fastener is not available, a fastener of equal size and strength (or stronger) may be used. Fasteners that are not reused, and those requiring thread locking compound will be called out. The correct torque value must be used when installing fasteners that require it. If the above conditions are not followed, parts or system damage could result.

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On-Vehicle Service	9J-B-1
Supplemental Inflatable Restraint	
Component Location	9J-B-1
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Forward Discriminating Sensor	9J-B-1
Diagnostic Energy Reserve Module (DERM)	9J-B-3
Resistor Module	9J-B-3

Passenger Compartment	
Discriminating Sensor	9J-B-5
Arming Sensor	9J-B-6
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Inflatable Restraint Indicator Lamp	9J-B-9
Inflator Module, Coil Assembly and Centering Coil Assembly	9J-B-9
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ON-VEHICLE SERVICE

SUPPLEMENTAL INFLATABLE RESTRAINT COMPONENT LOCATION

For location of various supplemental inflatable restraint components, refer to Figures 1 and 2.

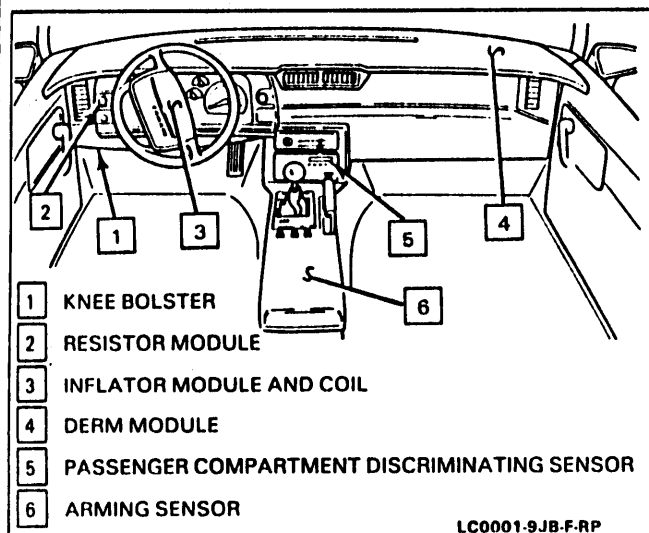


Figure 1 - Passenger Compartment SIR Component Location

INSPECTIONS REQUIRED AFTER ACCIDENT



Important

- Every SIR system component, harness or bracket must be inspected after an accident. If any are damaged or bent, they must be replaced even if a deployment did not occur. Inspect steering column, knee bolster and bracket for damage. Do not attempt to service the forward discriminating sensor, passenger compartment discriminating sensor, arming sensor, DERM, coil assembly or inflator module. Service is by replacement only. Any wire harness damage should always be repaired with the crimp and seal splice contained with tool J 38125-A.

CAUTION: Proper operation of the sensors and Supplemental Inflatable Restraint (SIR) System requires that any repairs to the vehicle structure return it to its original production configuration. Deployment (Current Code 51) or any visible damage to sensors and/or their mounting brackets requires replacement, not repair.

FORWARD DISCRIMINATING SENSOR

Figure 3

For descriptions and diagnosis of the Supplemental Inflatable Restraint (SIR) System, refer to SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM (SEC 9J) and SUPPLEMENTAL

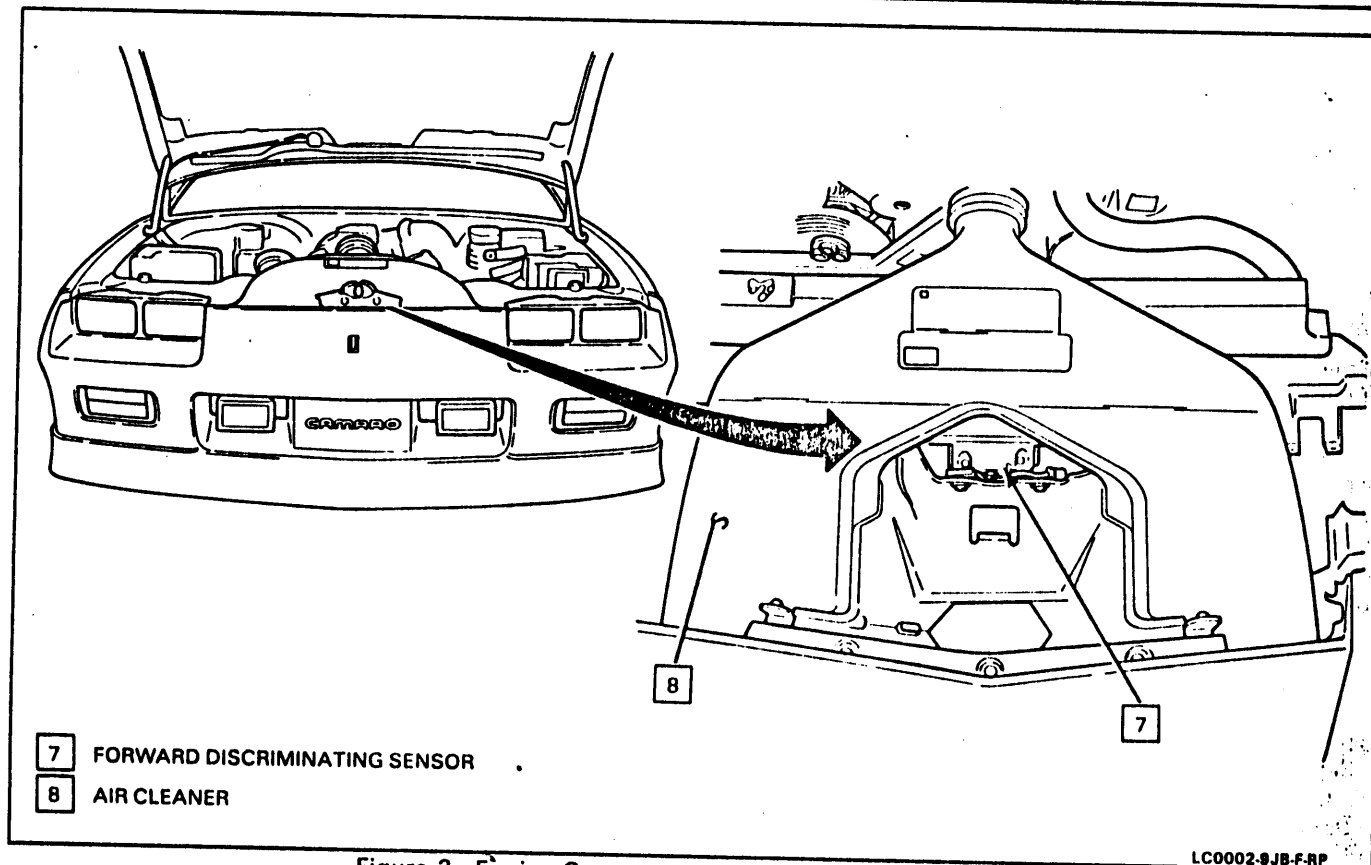


Figure 2 - Engine Compartment SIR Component Location

INFLATABLE RESTRAINT (SIR) SYSTEM DIAGNOSIS (SEC. 9J-A). All sensors are specifically calibrated for each vehicle series and are keyed to the mounting brackets and the SIR wiring harness. Caution should be used to ensure proper location of the sensors to their mounting brackets. The keying of the sensors to their mounting brackets and wiring harness should never be modified in the field.

CAUTION: Be very careful when handling a sensor. Never strike or jar a sensor. If you do, it could cause deployment and result in personal injury or improper operation of the Supplemental Inflatable Restraint (SIR) System. All sensors and mounting bracket bolts must be carefully torqued to ensure proper operation. Never power up the SIR system when any sensor is not rigidly attached to the vehicle since the sensor is easily activated when not attached, and could result in deployment.

CAUTION: The following procedures must be followed in the order listed to temporarily disable the Supplemental Inflatable Restraint (SIR) System and prevent false diagnostic codes from setting. Failure to follow this procedure could result in possible air bag deployment, personal injury, or unneeded SIR system repairs.

Remove or Disconnect

- Turn the engine control switch to the "OFF" position.
- 1. Negative battery cable.
 - Tape cable end to ensure it will not contact battery terminal.
- 2. SIR fuse from fuse block.
- 3. Left side sound insulator. Refer to INSTRUMENT PANEL, CLUSTER AND CONSOLE (SEC. 8C).
- 4. Connector position assurance (CPA) and yellow two-way SIR harness connector at base of steering column.
- Raise and suitably support vehicle. Refer to GENERAL INFORMATION (SEC. 0A).
- 5. Air cleaner.
- 6. Radiator air upper baffle.
- 7. Connector position assurance (CPA) (12) and electrical connector (11) behind the radiator support (10).
- 8. Bolts (9).
- 9. Forward discriminating sensor (7).

CAUTION: Proper operation of the sensors and Supplemental Inflatable Restraint (SIR) System requires that any repairs to the vehicle structure return it to its original production configuration. Deployment (Current Code 51) or any visible damage to

sensors and/or their mounting brackets requires replacement, not repair.

CAUTION: Proper operation of the forward discriminating sensor requires the sensor and its bracket be rigidly attached to the vehicle structure and that the arrow on the sensor be pointing toward the front of the vehicle.

Install or Connect

NOTICE: See "Notice" on page 9J-B-1 of this section.

1. Forward discriminating sensor (7) with arrow pointing to the front of the vehicle.
2. Bolts (9).



Tighten

- Bolts (9) to 2.8 N·m (25 lb. in.)
- 3. Electrical connector (11) and connector position assurance (12) behind the radiator support (10).
- 4. Radiator air upper baffle.
- 5. Air cleaner.
- Lower vehicle.
- 6. Yellow two-way SIR harness connector at base of steering column and connector position assurance (CPA).
- 7. Left side sound insulator. Refer to INSTRUMENT PANEL, CLUSTER AND CONSOLE (SEC. 8C).
- 8. SIR fuse to the fuse block.
- 9. Negative battery cable.
- Turn the engine control switch to the "RUN" position and verify that the "INFLATABLE RESTRAINT" indicator flashes 7 to 9 times and then turns off. If the indicator does not respond as stated, refer to the SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM DIAGNOSIS (SEC. 9J-A).

DIAGNOSTIC ENERGY RESERVE MODULE (DERM)

Figures 4 and 5

For descriptions and diagnosis of the Supplemental Inflatable Restraint (SIR) System, refer to SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM (SEC. 9J) and SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM DIAGNOSIS (SEC. 9J-A).

CAUTION: The following procedures must be followed in the order listed to temporarily disable the Supplemental Inflatable Restraint (SIR) System and prevent false diagnostic codes from setting. Failure to follow this procedure could result in possible air bag deployment, personal injury, or unneeded SIR system repairs.

Remove or Disconnect

- Turn the engine control switch to the "OFF" position.
- 1. Negative battery cable.
 - Tape cable end to ensure it will not contact battery terminal.
- 2. SIR fuse from fuse block.
- 3. Left side sound insulator. Refer to INSTRUMENT PANEL, CLUSTER AND CONSOLE (SEC. 8C).
- 4. Connector position assurance (CPA) and yellow two-way SIR harness connector at base of steering column.
- 5. Instrument panel pad. Refer to INSTRUMENT PANEL, CLUSTER AND CONSOLE (SEC. 8C).
- 6. Side window defogger duct and screws.
 - Cut off an unused mounting screw tab (14) from the front edge of the instrument panel, just above the DERM module.
- 7. Screw (15).
- 8. DERM module (4).
- Unlatch orange connector lock and disconnect electrical connector.

Install or Connect

NOTICE: See "Notice" on page 9J-B-1 of this section.

1. Electrical connector and orange connector lock.
2. DERM module (4).
3. Screw (15).



Tighten

- Screw (15) to 1.5 N·m (13 lb. in.).
- 4. Side window defogger duct and screws.
- 5. Instrument panel pad. Refer to INSTRUMENT PANEL, CLUSTER AND CONSOLE (SEC. 8C).
- 6. Yellow two-way SIR harness connector at base of steering column and connector position assurance (CPA).
- 7. Left side sound insulator. Refer to INSTRUMENT PANEL, CLUSTER AND CONSOLE (SEC. 8C).
- 8. SIR fuse to the fuse block.
- 9. Negative battery cable.
- Turn the engine control switch to the "RUN" position and verify that the "INFLATABLE RESTRAINT" indicator flashes 7 to 9 times and then turns off. If the indicator does not respond as stated, refer to the SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM DIAGNOSIS (SEC. 9J-A).

RESISTOR MODULE

Figure 6

For descriptions and diagnosis of the Supplemental Inflatable Restraint (SIR) System, refer to SUPPLEMENTAL INFLATABLE RESTRAINT

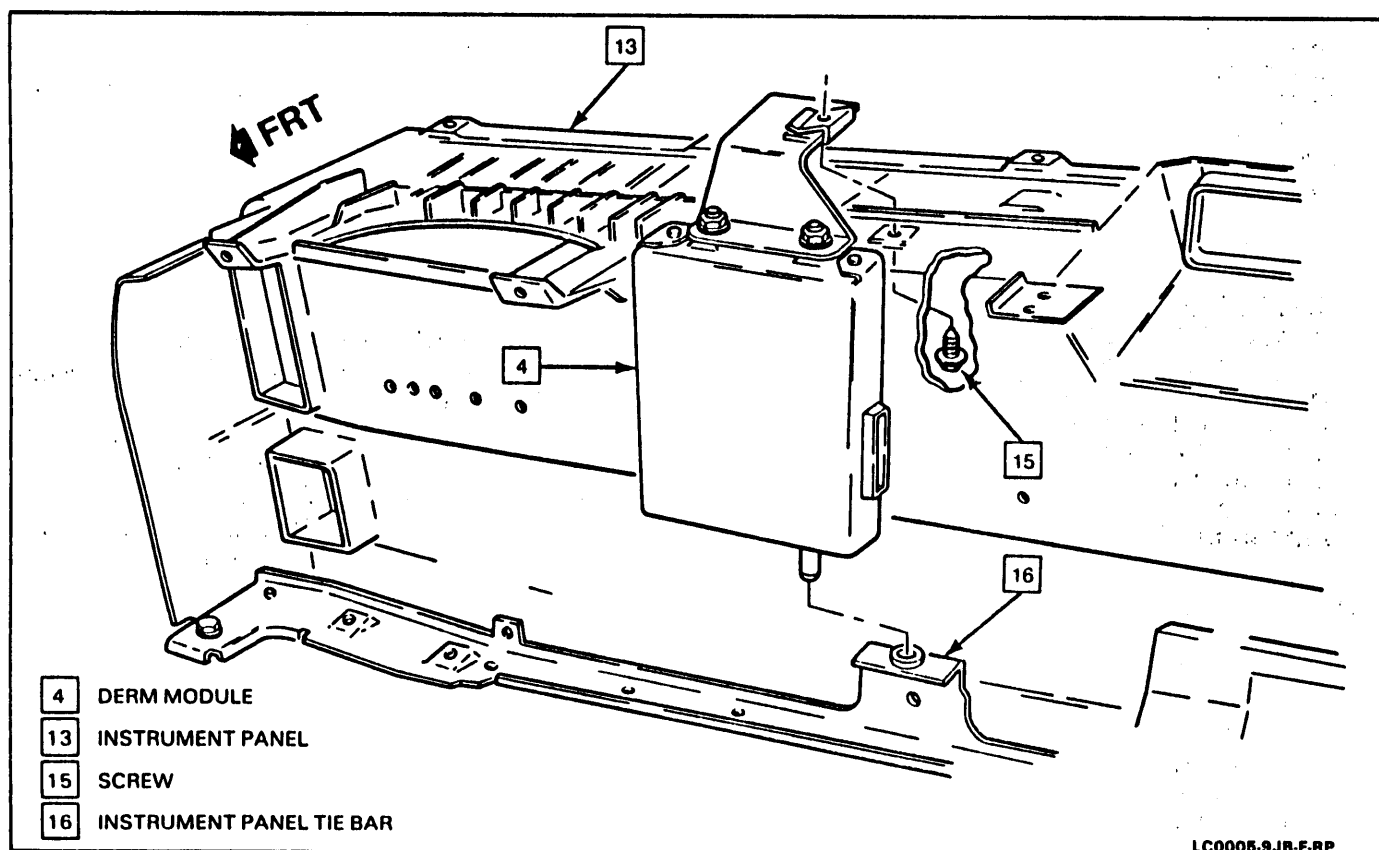


Figure 5 - Diagnostic Energy Reserve Module (DERM).

3. Knee bolster. Refer to 'Instrument Panel Knee Bolster and Bracket' in this section.
4. Yellow two-way SIR harness connector at base of steering column and connector position assurance (CPA).
5. Left side sound insulator. Refer to INSTRUMENT PANEL, CLUSTER AND CONSOLE (SEC. 8C).
6. SIR fuse to the fuse block.
7. Negative battery cable.
- Turn the engine control switch to the "RUN" position and verify that the "INFLATABLE RESTRAINT" indicator flashes 7 to 9 times and then turns off. If the indicator does not respond as stated, refer to the SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM DIAGNOSIS (SEC. 9J-A).

PASSENGER COMPARTMENT DISCRIMINATING SENSOR

Figure 7

For descriptions and diagnosis of the Supplemental Restraint (SIR) System, refer to SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM (SEC. 9J) and SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM DIAGNOSIS (SEC. 9J-A). All sensors are specifically calibrated for each vehicle series and are keyed to the mounting brackets and the SIR wiring harness. Caution should be used to ensure proper location of the sensors to their mounting brackets. The keying of the sensors to

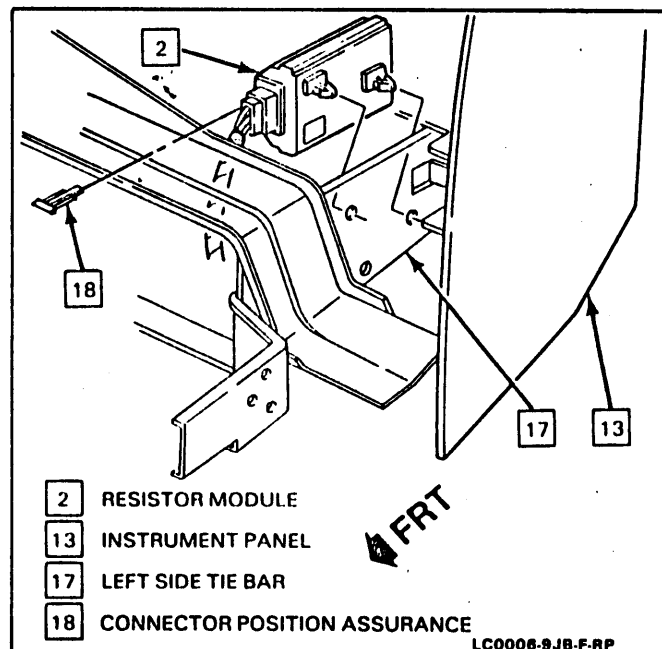


Figure 6 - Resistor Module

their mounting brackets and wiring harness should never be modified in the field.

CAUTION: Be very careful when handling a sensor. Never strike or jar a sensor. If you do, it could cause deployment and result in personal injury or improper operation of the Supplemental Inflatable Restraint

(SIR) System. All sensors and mounting bracket bolts must be carefully torqued to ensure proper operation. Never power up the SIR system when any sensor is not rigidly attached to the vehicle since the sensor is easily activated when not attached, and could result in deployment.

CAUTION: The following procedures must be followed in the order listed to temporarily disable the Supplemental Inflatable Restraint (SIR) System and prevent false diagnostic codes from setting. Failure to follow this procedure could result in possible air bag deployment, personal injury, or unneeded SIR system repairs.

↔ Remove or Disconnect

- Turn the engine control switch to the "OFF" position.
- 1. Negative battery cable.
 - Tape cable end to ensure it will not contact battery terminal.
- 2. SIR fuse from fuse block.
- 3. Left side sound insulator. Refer to INSTRUMENT PANEL, CLUSTER AND CONSOLE (SEC. 8C).
- 4. Connector position assurance (CPA) and yellow two-way SIR harness connector at base of steering column.
- 5. Knee bolsters. Refer to "Instrument Panel Knee Bolster and Bracket" in this section.
- 6. Console. Refer to INSTRUMENT PANEL, CLUSTER AND CONSOLE (SEC. 8C).
- 7. Heater air distribution duct and screws.
- 8. Connector position assurance (CPA) (20) and electrical connector (21).
- 9. Bolts (19).
- 10. Passenger compartment discriminating sensor (5).

CAUTION: Proper operation of the sensors and Supplemental Inflatable Restraint (SIR) System requires that any repairs to the vehicle structure return it to its original production configuration. Deployment (Current Code 51) or any visible damage to sensors and/or their mounting brackets requires replacement, not repair.

CAUTION: Proper operation of the passenger compartment discriminating sensor requires that the sensor be rigidly attached to its bracket with the bolts at the front and rear of the sensor. The arrow on the sensor must be pointing toward the front of the vehicle.

↔ Install or Connect

NOTICE: See "Notice" on page 9J-B-1 of this section.

1. Passenger compartment discriminating sensor (5) with arrow pointing toward the front of the vehicle.
2. Bolts (19).

⌚ Tighten

- Bolts (19) to 2.8 N·m (25 lb. in.).
- 3. Electrical connector (21) and connector position assurance (CPA) (20).
- 4. Heater air distribution duct and screws.
- 5. Console. Refer to INSTRUMENT PANEL, CLUSTER AND CONSOLE (SEC. 8C).
- 6. Knee bolster. Refer to "Instrument Panel Knee Bolster and Bracket" in this section.
- 7. Yellow two-way SIR harness connector at base of steering column and connector position assurance (CPA).
connector into place.
- 8. Left side sound insulator. Refer to INSTRUMENT PANEL, CLUSTER AND CONSOLE (SEC. 8C).
- 9. SIR fuse to the fuse block.
- 10. Negative battery cable.
 - Turn the engine control switch to the "RUN" position and verify that the "INFLATABLE RESTRAINT" indicator flashes 7 to 9 times and then turns off. If the indicator does not respond as stated, refer to the SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM DIAGNOSIS (SEC. 9J-A).

ARMING SENSOR

Figure 8

For descriptions and diagnosis of the Supplemental Inflatable Restraint (SIR) System, refer to SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM (SEC. 9J) and SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM DIAGNOSIS (SEC. 9J-A). All sensors are specifically calibrated for each vehicle series and are keyed to the mounting brackets and the SIR wiring harness. Caution should be used to ensure proper location of the sensors to their mounting brackets. The keying of the sensors to their mounting brackets and wiring harness should never be modified in the field.

CAUTION: Be very careful when handling a sensor. Never strike or jar a sensor. If you do, it could cause deployment and result in personal injury or improper operation of the Supplemental Inflatable Restraint (SIR) System. All sensors and mounting bracket bolts must be carefully torqued to ensure proper operation. Never power up the SIR system when any sensor is not rigidly

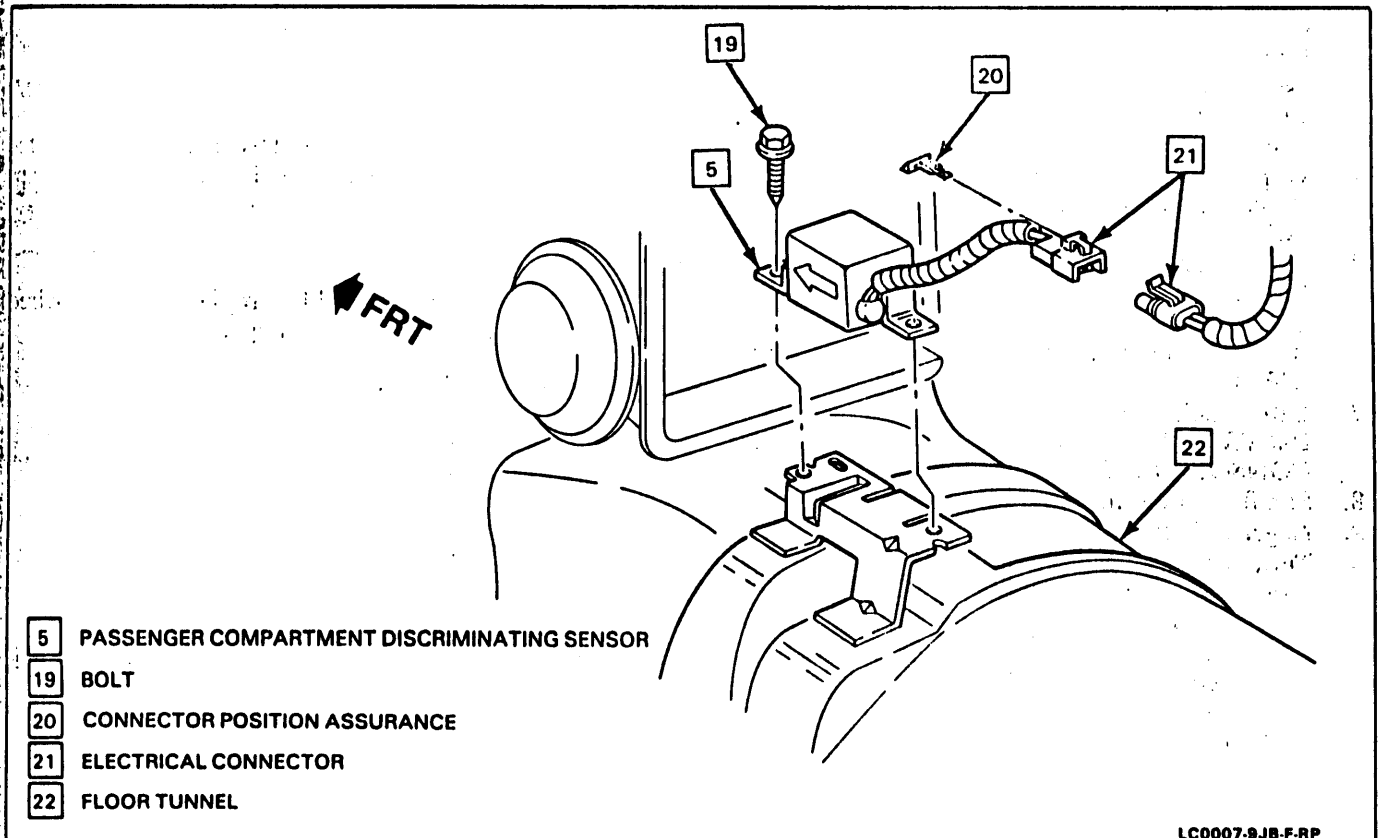


Figure 7 - Passenger Compartment Discriminating Sensor

attached to the vehicle since the sensor is easily activated when not attached, and could result in deployment.

CAUTION: The following procedures must be followed in the order listed to temporarily disable the Supplemental Inflatable Restraint (SIR) System and prevent false diagnostic codes from setting. Failure to follow this procedure could result in possible air bag deployment, personal injury, or unneeded SIR system repairs.

↔ Remove or Disconnect

- Turn the engine control switch to the "OFF" position.
- 1. Negative battery cable.
 - Tape cable end to ensure it will not contact battery terminal.
- 2. SIR fuse from fuse block.
- 3. Left side sound insulator. Refer to INSTRUMENT PANEL, CLUSTER AND CONSOLE (SEC. 8C).
- 4. Connector position assurance (CPA) and yellow two-way SIR harness connector at base of steering column.
- 5. Knee bolster. Refer to "Instrument Panel Knee Bolster and Bracket" in this section.

6. Upper console. Refer to INSTRUMENT PANEL, CLUSTER AND CONSOLE (SEC. 8C).
7. Connector position assurance (CPA) (23) and electrical connector (24).
8. Bolts (25).
9. Arming sensor (6).

CAUTION: Proper operation of the sensors and Supplemental Inflatable Restraint (SIR) System requires that any repairs to the vehicle structure return it to its original production configuration. Deployment (Current Code 51) or any visible damage to sensors and/or their mounting brackets requires replacement, not repair.

CAUTION: Proper operation of the arming sensor requires that the sensor be rigidly attached to its bracket with the bolts at the front and rear of the sensor. The arrow on the sensor must be pointing toward the front of the vehicle.

→ Install or Connect

NOTICE: See "Notice" on page 9J-B-1 of this section.

1. Arming sensor (6).
2. Bolts (25).

**Tighten**

- Bolts (25) to 2.8 N·m (25 lb. in.).
- 3. Electrical connector (24) and connector position assurance (CPA) (23).
- 4. Upper console. Refer to INSTRUMENT PANEL, CLUSTER AND CONSOLE (SEC. 8C).
- 5. Knee bolster. Refer to "Instrument Panel Knee Bolster and Bracket" in this section.
- 6. Yellow two-way SIR harness connector at base of steering column and connector position assurance (CPA).
- 7. Left side sound insulator. Refer to INSTRUMENT PANEL, CLUSTER AND CONSOLE (SEC. 8C).
- 8. SIR fuse to the fuse block.
- 9. Negative battery cable.
- Turn the engine control switch to the "RUN" position and verify that the "INFLATABLE RESTRAINT" indicator flashes 7 to 9 times and then turns off. If the indicator does not respond as stated, refer to the SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM DIAGNOSIS (SEC. 9J-A).

INSTRUMENT PANEL KNEE BOLSTER AND BRACKET**Figure 9**

The knee bolster is located towards the base of the steering column. The center of the knee bolster wraps over the steering column.

**Important**

- The knee bolster should be replaced, not repaired if there is any visible damage.

**Remove or Disconnect**

- Open screw covers (23).
- 1. Screws (29).
- 2. Knee bolster (1).
- 3. Nuts (30).
- 4. Bracket (27).

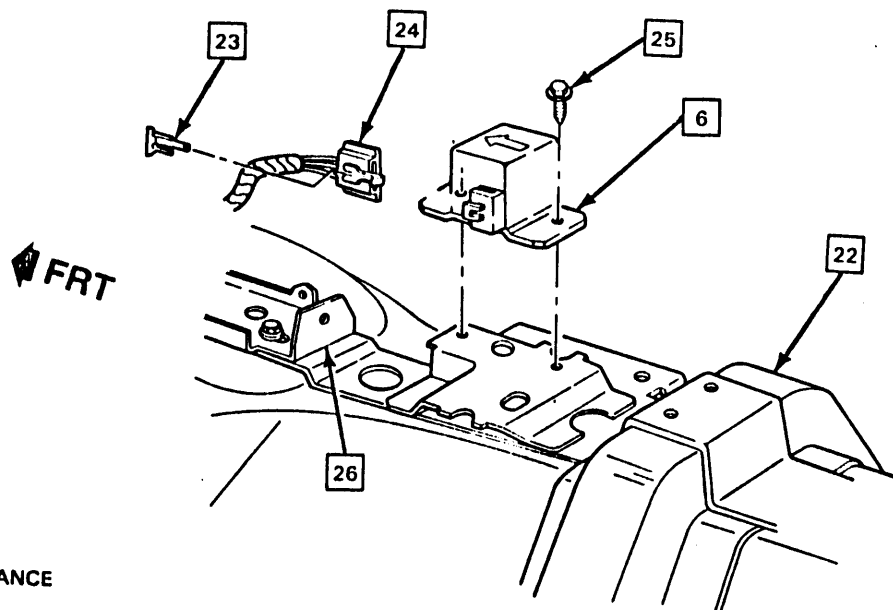
**Install or Connect**

NOTICE: See "Notice" on page 9J-B-1 of this section.

1. Bracket (27).
2. Nuts (30).
3. Knee bolster (1).
4. Screws (29).

**Tighten**

- Screws (29) to 1.9 N·m (17 lb. in.)



- | | |
|----|------------------------------|
| 6 | ARMING SENSOR |
| 22 | FLOOR TUNNEL |
| 23 | CONNECTOR POSITION ASSURANCE |
| 24 | ELECTRICAL CONNECTOR |
| 25 | BOLT |
| 26 | CONSOLE MOUNTING BRACKET |

Figure 8 - Arming Sensor

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SUPPLEMENTAL INFLATABLE RESTRAINT SYSTEM 9J-B-9

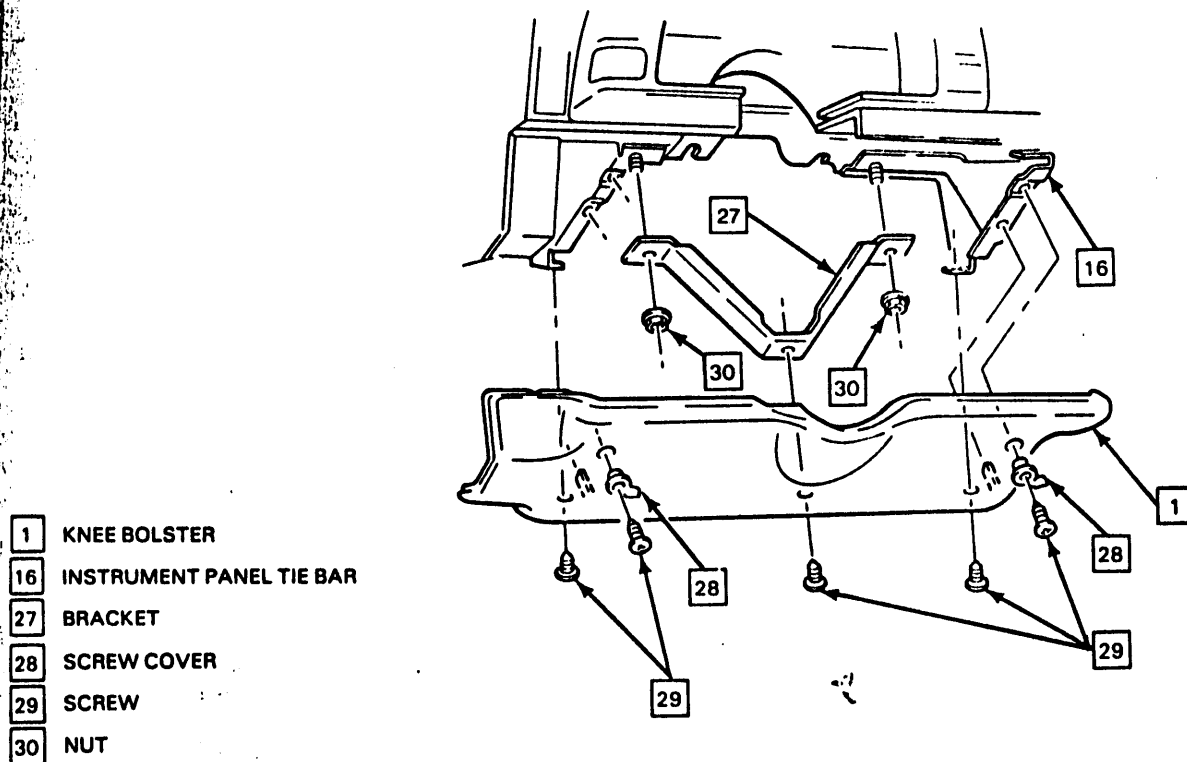
Close screw covers (28).

INFLATABLE RESTRAINT INDICATOR LAMP

For service information on the indicator lamp, refer to INSTRUMENT PANEL, CLUSTER AND CONSOLE (SEC. 8C).

INFLATOR MODULE, COIL ASSEMBLY AND CENTERING COIL ASSEMBLY

For service information on these components, refer to STEERING WHEEL UPPER COLUMN ON-VEHICLE SERVICE - SUPPLEMENTAL INFLATABLE RESTRAINT (SEC. 3F4).



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Figure 9 - Instrument Panel Knee Bolster and Bracket

SPECIFICATIONS**FASTENER TORQUE SPECIFICATIONS**

Forward Discriminating Sensor Bolt	2.8 N·m (25 lb. in.)
Diagnostic Energy Reserve Module Screw	1.5 N·m (13 lb. in.)
Passenger Discriminating Sensor Bolt	2.8 N·m (25 lb. in.)
Arming Sensor Bolt	2.8 N·m (25 lb. in.)
Knee Bolster Screw	1.9 N·m (17 lb. in.)